



Tribal 24-hr HazMat & Oil Spill Awareness Course

Sponsored by the Lummi Nation, US EPA Region 10, and the NW Regional Response Team

September 24-26, 2014
Silver Reef Hotel, Casino & Spa
Lummi Indian Reservation



Tribal officials and representatives that have responsibilities in Cultural Resources, Forestry, Fisheries, Water Resources, Law Enforcement, Fire Department, Emergency Planning, TERO, Wildlife Protection, or Environmental Protection are invited to attend this FREE 24-hour HazMat and Oil Spill Awareness Course taught by the US EPA. Participants will learn the basic skills needed to assist in responding to a hazardous materials and/or oil spill incident, including health/safety, basic chemistry, use and types of personal protective equipment, agency responsibilities and resources. Additional skills taught will include information related to integrating tribal responsibilities into the Incident Command System (ICS) pursuant to the Northwest Area Contingency Plan (<http://www.rrt10nwac.com/nwacp/>). At their discretion, Tribes may determine this meets the OSHA 24-Hr HazMat Technician or 8-Hr HazMat Refresher requirement.

A block of 20 discounted rooms has been reserved at the Silver Reef Hotel. Please call 866-383-0777 ext. 155 and mention "Lummi Natural Resources Hazmat & Oil Spill Response Training" when making reservations. Space is limited to 45 participants in the training - please register today!

To register, please contact:
Josie Clark, US EPA
(206)553-6239 or
clark.josie@epa.gov

Training Information:
Location: 4876 Haxton Way, Ferndale, WA
Times: 8:00 am-4:30 pm (each day)
Cost: FREE (except travel and lodging)



TRIBAL 24 HR HAZARDOUS MATERIAL AND OIL SPILL AWARENESS COURSE

**September 24-26, 2014
Silver Reef Hotel, Casino & Spa, Ferndale, WA**

**Instructors: Jeff Rodin, EPA, Josie Clark, EPA, Tim Callister, US Coast Guard,
Eric Lindeman, EPA Contractor, Dave Byers, WA Ecology, Scott McCreery, BP**

Course Objectives:

Provide tribal government participants the basic skills needed to effectively assist in responding to a hazardous materials and/or oil spill incident and/or participating in spill exercises, including

- *health/safety and personal protective equipment,*
- *basic fate, transport and weathering of oil and hazmat,*
- *typical steps in oil/hazmat response,*
- *basic oil response techniques and effectiveness,*
- *agency responsibilities and resources,*
- *integrating tribal responsibilities into the Incident Command System (ICS)*

DAY 1 – Wednesday, 24 September, 2014

8:00 01. Introduction to Course and Participants - Jeremy Freimund, Lummi Nation, Josie Clark, EPA

9:00 02. Response Partners and Roles - Tim Callister, USCG, Jeff Rodin, EPA, Jeremy Freimund, Lummi Nation, Carl Andersen WA, Scott McCreery, BP

- Objective: Become familiar with key response partners and the resources they bring.

10:15 BREAK

10:30 03. HazMat and Petroleum Properties - Eric Lindeman, E&E

- Objective: Understand the characteristics that qualify material as hazardous (corrosivity, toxicity, flammability, etc), and how those materials behave when released into the environment.

11:30 04. Responder Health and Safety - Eric Lindeman, E&E

- Objective: familiarize students with hazards that are typically encountered on oil/hazmat response sites so that they can safely visit an active cleanup site.

12:30 LUNCH

1:30 05. Incident Command System Overview - Tim Callister, USCG

- Objective: Provide refresher of overall ICS structure and function. Dig deeper into likely Tribal roles such as IC, Liaison, EU, and Logistics.

2:30 BREAK

2:45 06. EXERCISE: Incident Command System - Josie Clark, EPA

- Objective: Have students use the material in the previous lecture to think through accomplishing needed tasks within ICS

- 3:15 07. Identification of Hazardous Materials - Eric Lindeman, E&E**
- Objective: Students should understand placarding and be exposed to the various transportation and storage containers that they may encounter.
- 3:45 08. Personal Protection and Respirators - Eric Lindeman, E&E**
- Objective: Students will become familiar with dermal and inhalation protection.
- 4:15 09. EXERCISE: Using Information Resources to Work Safely with Chemicals – Eric Lindeman, E&E**
- Objective: Students should be able to use key resources to determine safe exposure levels, and should experience the variety of advice provided by the resources.
- 5:00 10. Considerations, Costs, and funding sources for developing tribal spill response capabilities – the Lummi Nation Experience - Jeremy Freimund, Lummi Nation**
- 5:30 Dismissal and optional field trip to see Lummi Spill Response Cache.**

DAY 2 – Thursday, 25 September, 2014

- 8:00 11. NW Area Contingency Plan Overview - Josie Clark, EPA**
- Objective: Students to understand basic concepts and contents of the NWACP, how NWAC functions as coordination point for large oil/hazmat response.
- 8:30 12. Land and Water-borne Oil Spill Response - Tim Callister, USCG**
- Objective: Students will become familiar with booming strategies and with the limitations of using boom.
- 9:45 BREAK**
- 10:00 13. Recovery Techniques, Tools and Equipment - Tim Callister, USCG**
- Objective: Students will become familiar with oil recovery tactics and equipment and understand the difference between recoverable and non-recoverable oil.
- 11:30 14. Vessel of Opportunity Program through Ecology - Dave Byers, Ecology**
- 12:00 LUNCH**
- 1:00 15. Responding to Hazmat - Eric Lindeman, E&E, Jeff Rodin, EPA**
- Objective: familiarize students with basic response principles for air releases, unknowns, and miscible liquids
- 2:30 16. EXERCISE: Field Operations for Oil Spill Response**
- Three Stations, 45 min each, Stommish Grounds:
- Underflow and Overflow Dams – EPA (Eric and Jeff)
 - Boom deployment (towing and anchoring) – Lummi Responders
 - Oil Collection (pumps, skimmers and sorbants) – MSRC
- 5:00 End of EXERCISE**
- 5:30 Lummi Style BBQ Salmon Dinner!**

DAY 3 – Friday, 26 September, 2014

8:00 17. Additional Issues on Spill Response (15 min each)

Reporting Requirements & Notifying Tribes - *Josie Clark, EPA*

- Objective: Students should understand the triggers and recipients of mandatory oil/hazmat spill notifications. Students should also understand how their Tribe fits into the State and Fed notification flow.

First Responder Liability - *Jeff Rodin, EPA*

- Objective: Students will understand their liability or lack thereof when they act as a first responder.

Other programs involving Tribes: NRDA, ESA - *Josie Clark, EPA*

- Objective: Students to understand additional channels besides IMT and initial response through which power can be exerted or resources repaired.

Who Pays for the Chemical Release or Oil Spill? - *Jeff Rodin, EPA*

- Objective: Students to understand available Federal and State funds and cost recovery mechanisms available to them.

9:00 18. Oil by Rail - *Dave Byers, Ecology*

- Objective: Students will understand the basic make up of OSP and Bakken oil. They will understand the main transportation routes of these products through their area, and critical response considerations.

10:00 BREAK

10:15 Tribal Participation in Oil Spill Exercises - *Captain Raymond, USCG Commanding Officer of Sector Puget Sound, Jeremy Freimund, Lummi Nation*

- Objective: Provide an opportunity for Captain Raymond to explain value and experience of having Tribal participate in exercises. Facilitate group discussion on how tribes can be prepared, and best leverage limited resources.

11:00 Review of Student Objectives - *Eric, Josie, Tim*

- Objective: Ensure that all identified student objectives from Day 1 have been met. If gaps, figure out how to meet the need.

12:00 LUNCH

1:00 19. EXERCISE: Working Spill Response Scenarios and ICS

6 Stations, 30 min per station.

6 Exercise Stations:

- 1) Refinery Fire – Liaison focus*
- 2) Derailment – UC focus*
- 3) Pipeline Rupture – EU focus*
- 4) Booming Tactics for specific river – Operations focus*
- 5) PPE Dress Out Station – H&S focus*
- 6) Barge Grounding – ICS Structure focus*

4:30 20. Hot Wash and Evaluations

5:00 Dismissal

U.S.C.G. Response Program



Objective

- Through flow charts and classroom participation, discuss in detail the Coast Guard oil spill response organization, roles and missions.



Oil Spill Legislation

- Federal Water Pollution Control Act (FWPCA) 1972
- Oil Pollution Act (OPA90)



The Oil Pollution Act of 1990



- Following the 1989 *Exxon Valdez* oil spill and the Oil Pollution Act of 1990 (OPA-90), the U.S. Congress required that the Coast Guard acquire and maintain pre-positioned pollution response equipment to be readily available to address spills that exceed local response capabilities.
- The Keeper Class buoy tenders (175' foot WLMs) were built and strategically placed to meet this mandate while still performing their primary mission of servicing aids to navigation and are the Coast Guard's primary VOSS deployment platform.
- The Juniper Class buoy tenders (225 foot WLBs) were built with the integrated Spilled Oil Recovery System (SORS) to meet this mandate for an oil skimming system.



The Oil Pollution Act of 1990 brought us....

- **Prevention:**
 - **Double Hull Requirement for Tank Vessels** -Tank vessels must meet or exceed double hull specifications by the year 2015. Vessels are being refit to comply, changed to transport non-petroleum products such as grain, or scrapped.
 - **Access to National Records** – Permits the Coast Guard to review national driver registration and criminal records prior to issuing or renewing a merchant mariner's license or document.
 - **Civil and Criminal Penalty Provisions** – Permits the Coast Guard to take appropriate punitive legal action against polluters.
- **Preparedness -**
 - **Area Committees and Contingency Plans** – Requires formation of response plans tailored specifically to areas that could be effected by oil spills and hazardous substance releases.
 - **Vessel and Facility Response Plans** - Operators of oil facilities and transport vessels are required to establish detailed response plans in conjunction with federal and local response strategies.

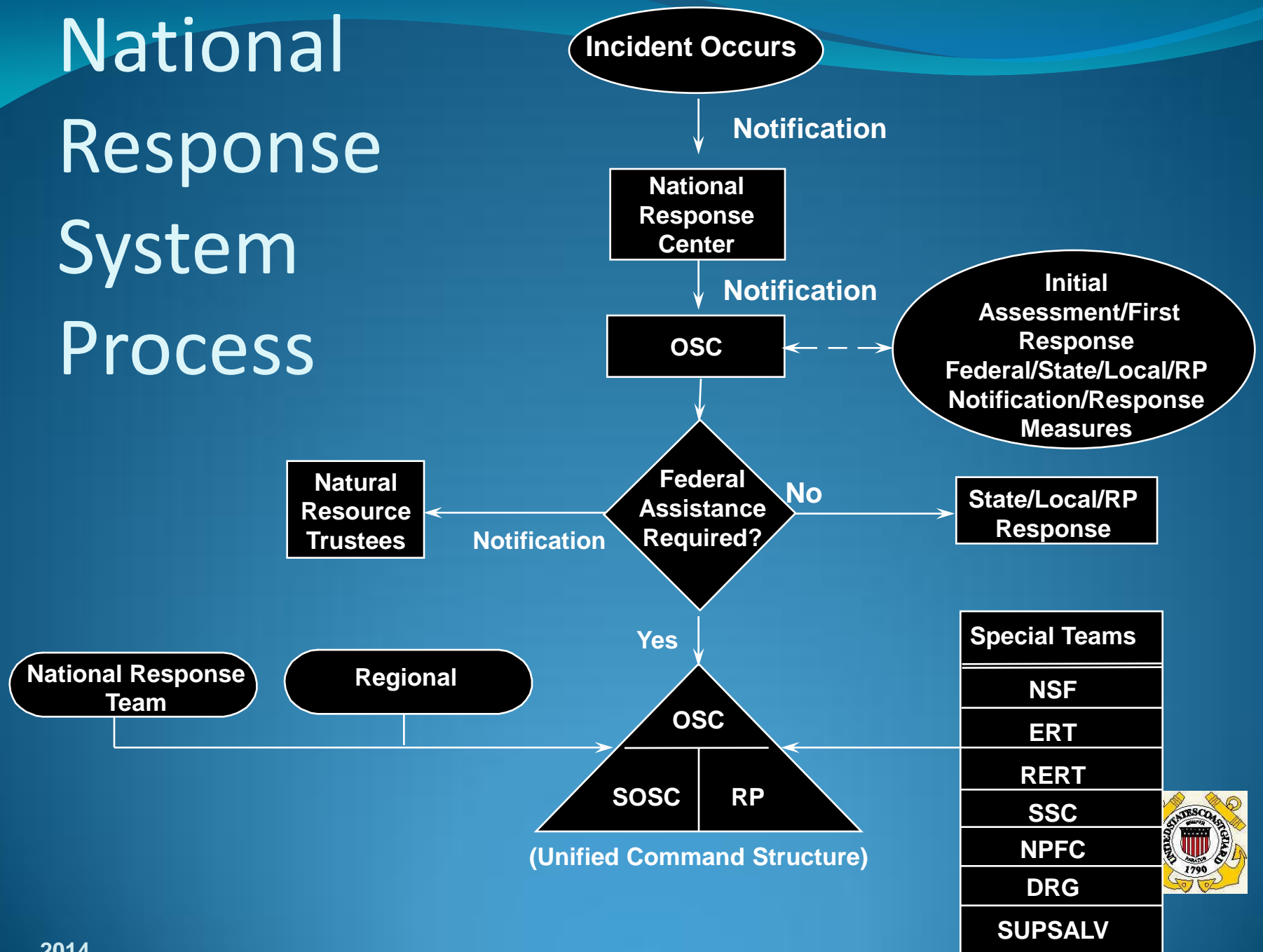


The Oil Pollution Act of 1990 brought us....

- **Liability and Compensation -**
- **National Pollution Funds Center (NPFC)** – Responsible for managing the billion dollar oil spill liability trust fund, which is used to fund spill responses, compensate claimants, fund environmental assessments and recover costs from responsible parties.
- **Financial Responsibility for Pollution** – Vessel owners or operators must establish and maintain evidence of adequate insurance.
- **Response -**
- **Response Management System** - Establishes guidelines for creating a unified command system that can coordinate multiple federal, state and local responders. The management system also requires on-scene coordinators (OSCs) to direct response efforts and coordinate all action at the scene of a response. There are 47 specially trained OSC's residing in strategic ports around the country.
- **National Strike Force** - A team of highly trained, experienced personnel and specialized equipment which are strategically placed along each coast for the specific purpose of responding to major spills or releases. The national strike teams have responded to almost 600 incidents worldwide since 1991.



National Response System Process



Federal On Scene Coordinator (FOSC)

- Federal OSCs are the federal officials predesignated by United States Environmental Protection Agency and the United States Coast Guard to coordinate response resources.
- The OSC has the authority to direct the response, in most situations, however, the OSC will choose to monitor the actions of the RP and/or local responders and provide support and advice where appropriate.



Role Of The National Strike Force (NSF)



National Strike Force Mission

- Function as a **“special team”** within the National Response Framework (NRF)
- Develop and provide highly trained, experienced personnel and specialized equipment to Coast Guard and other federal Incident Commanders under the National Contingency Plan (NCP).

Founding of the National Strike Force:

- The National Strike Force (NSF) was established in 1973 as a direct result of the Federal Water Pollution Control Act of 1972.
- The NSF's role and responsibilities in supporting the National Response System have expanded under subsequent major environmental legislation, including the Clean Water Act of 1977, the Oil Pollution Act of 1990, the National Response Plan and numerous Presidential Directives.



National Strike Force Capabilities

- Incident Command / Response Management Support
- Oil and Hazardous Chemical Response
- WMD Response including Radiological and Bio-Terrorism incidents
- Contractor / Responsible Party Oversight
- Preparedness Exercise & Event Planning Support
- Training



NSF Oil/HAZMAT Capabilities

- Crisis Management Support
- Oil Containment and Recovery Equipment
 - Viscous Oil Pumping System
 - Vessel of Opportunity Skimming System
 - Submersible/Non-Submersible Pumps
- Hazardous Materials Response
- Preparedness for Response Exercise Program (PREP)
- Equipment Maintenance Capabilities
- Support for SORS/VOSS Deployments
- Response Resource Assessment/Inventory (RRI)
- Shoreline Cleanup and Assessment (SCAT)



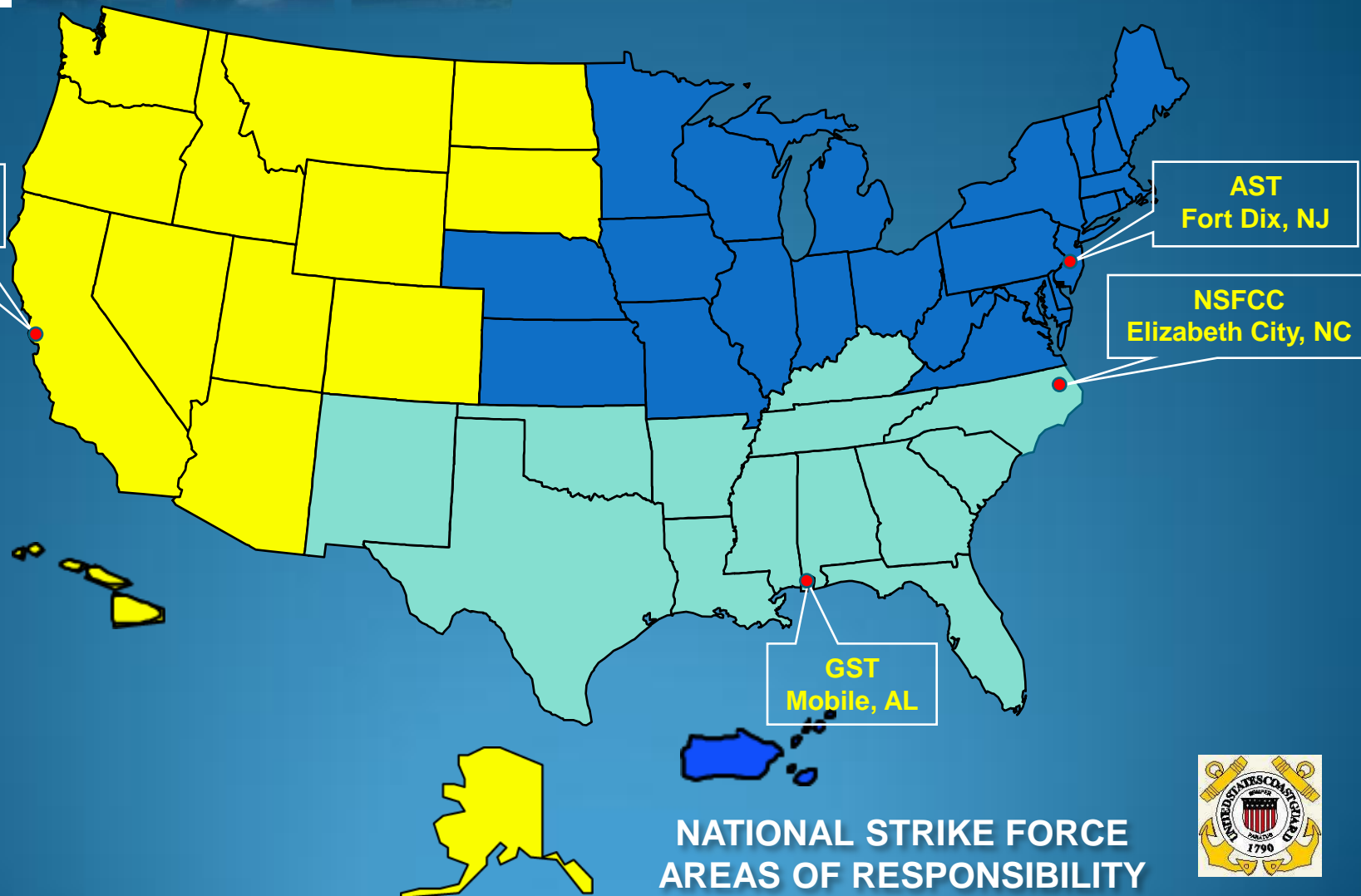


National Strike Force

UNCLAS//FOUO



"The World's Best Responders: Any Time, Any Place, Any Hazard."



Role Of The District Response Group (DRG) & District Response Advisory Teams (DRAT)



EO-4E

District Response Group (DRG)

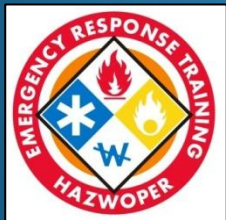
- Provides a framework within which districts organize resources.
- Includes all CG Units, personnel and equipment [Stations; IMD's; VOSS etc...]
- Each **District Response Advisory Team (DRAT)**, with assistance from the **National Strike Force (NSF)**, is responsible for ensuring annual SORS training is conducted aboard each WLB. The DRAT and NSF also provide deployment support to each WLB during actual oil recovery operations.



EO-4E

District Response Advisory Teams (DRAT)

- Serves as the DRG's dedicated staff
- Deployable team to support the OSC
- Dedicated to increasing pollution response preparedness
- Provides assistance during response operations to the FOSC
- Coordinates District ICS and HAZWOPER Training
- Participates in PREP and Equipment Deployment Exercises
- Regional Response Team Coordinator/ Assistance.



District Response Advisory Teams (DRAT)

- Maintain Industry/OSRO Relationships
- Area Contingency Plan Implementation
- District Resource Inventory
- ICS Coaching/Qualification Process Support
- Marine Environmental Response Support
- Support R+D and International Oil Spill Initiatives



Environmental Protection Agency

Region 10

Emergency Response Program

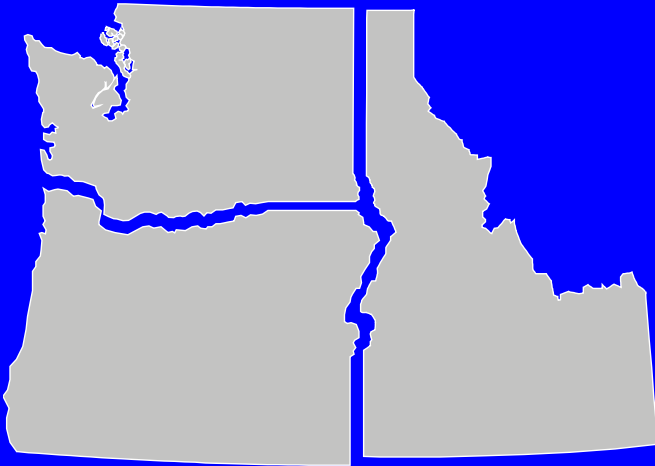
Roles and Capabilities

Jeffry Rodin

EPA OSC



EPA Region 10



- **Alaska**
- **Idaho**
- **Oregon**
- **Washington**

EPA's Mission:



- EPA's mission is to protect human health and to safeguard the natural environment — air, water, and land upon which life depends.
- For 35+ years, EPA has been following that mission to respond to hazardous materials emergency responses.



EPA's Response Authorities



- **CERCLA (Superfund)**
 - Response to releases or threats of release of hazardous substances, pollutants or contaminants
- **Clean Water Act as amended by the Oil Pollution Act (OPA)**
 - Response to discharges or threats of discharges of oil to waters of the United States
- **Stafford Act/HSPD-5**
 - Provides federal coordination and funding for response to declared and non-declared National Disasters (natural and man-made)

EPA's Emergency Response Program: Who Are We?

- **14 On-Scene Coordinators (OSCs)**
 - 8 in Seattle, 2 in Portland, 1 in Boise, 1 in Coeur d' Alene, and 2 in Anchorage
- **2 Spill Contingency Planners**
 - One for Alaska and one for three northwest states
- **Enforcement Specialists**
- **Contracts Manager**



EPA's Emergency Response Program: What Do We Do?

- **Emergency response to accidental releases of oil and chemicals**
- **Response to releases resulting from natural or man-made disasters**
- **CERCLA Time-Critical Removal Actions**
- **Planning and Preparedness**
 - Training, exercises, contingency planning, outreach
- **Prevention/Enforcement**
 - Emergency Planning Community Right-to-Know (EPCRA)
 - Clean Air Act 112r Risk Management Program (112r)
 - Clean Water Act, Oil Pollution Act Amendments (OPA)
- **Outreach/Capacity Building**



Assets Available to the OSC: Internal EPA



- EPA Environmental Response Teams (Las Vegas, NV and Edison, NJ)
 - Specialized technical resources and personnel
- EPA Radiological Emergency Response Teams (Las Vegas, NV and Montgomery, AL)
 - Radiation monitoring, analysis, radiation health physics, mobile and fixed laboratories
- EPA Criminal Enforcement Agents
- National Enforcement Investigation Center (NEIC)
- EPA Research Labs



Assets Available to the OSC: National Response System



- USCG Strike Teams
- DOD explosives experts
- DOD salvage team
- DOE Radiation Teams
- EPA/NOAA Scientific Support Coordinators
- U.S. Army Corps of Engineers (USACE)
- Centers for Disease Control (CDC)/Agency for Toxic Substances and Disease Registry (ATSDR)
- DOI/DOC - natural resource trustees

Assets Available to the EPA OSC: Contractors



- Superfund Technical Assessment and Response Team (START)
 - Core ER Team in Seattle
 - Teams in Portland, OR and Anchorage, AK
- Emergency Rapid Response Services Contractor (ERRS)
 - Contractor based out of Washington State with teaming subcontractors covering all of Region 10
- Specialized contracts



Air Monitoring, Sampling & Chemical Detection

- PID/FID;
- Multi Gas and Single Gas;
- Chlorine, Ammonia, Hydrogen Cyanide Gas Monitors;
- Dust Monitors;
- Detector Tubes;
- Chemical Chips;
- Air Sampling Pumps with Assorted Sample Media;
- Mercury Vapor Analyzer;
- HAZCAT Kit & First Step Hazard Identification Kit.



Chemical Weapons Detection- Radiological Monitoring- Biological Detection/Sampling-



- Detector Tubes
- Chemical agent detectors
- Portable GC/MS
- Chemical agent detectors
- Radiological Alpha, Beta, Gamma Probes/Meters
- Isotope Identifier



Emergency Response - Other Resources



- Sampling and PPE Fly-Away Kits for Prompt Response to Remote Locations
- BOAs for Analytical Labs, Cultural Resources
- BOAs for Aircraft and Watercraft under Development
- Field Laboratory
- Rapid Geoprobe Assessment



Oil Spill Responses

- Into or threatening waters of U.S.
- Regional guideline is >200 gallons.
 - Tanker truck rollovers
 - Vessel incidents
 - Leaking underground or above ground tanks that are impacting surface water





EPA Emergency Response



Federal On-Scene Coordinators (FOSCs):

- Federal officials pre-designated under the National Contingency Plan (NCP) to coordinate and direct responses to actual, or threatened, releases of oil or hazardous substances that present an imminent and substantial danger to public health and welfare or to the environment.
- Have specialized equipment and training to coordinate and provide support to all local, state and regional response communities.
- Holds primary responsibility for oil spills and hazmat releases to inland areas and waters, U.S. Coast Guard FOSCs have responsibility in the coastal zone.
- FOSCs have funding and enforcement mechanisms to ensure hazmat and oil spill responses are properly managed.

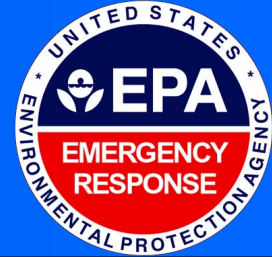
Assessment and Removal



- Removal Site Assessment
 - Site Characterization
 - Extent of Contamination Surveys
 - Innovative Technologies
- Removal Support
 - Engineering Services
 - Treatment Technology Evaluation
 - Waste Disposal Options
 - Excavation
 - Bulking
 - Transportation and disposal



Emergency Response Process



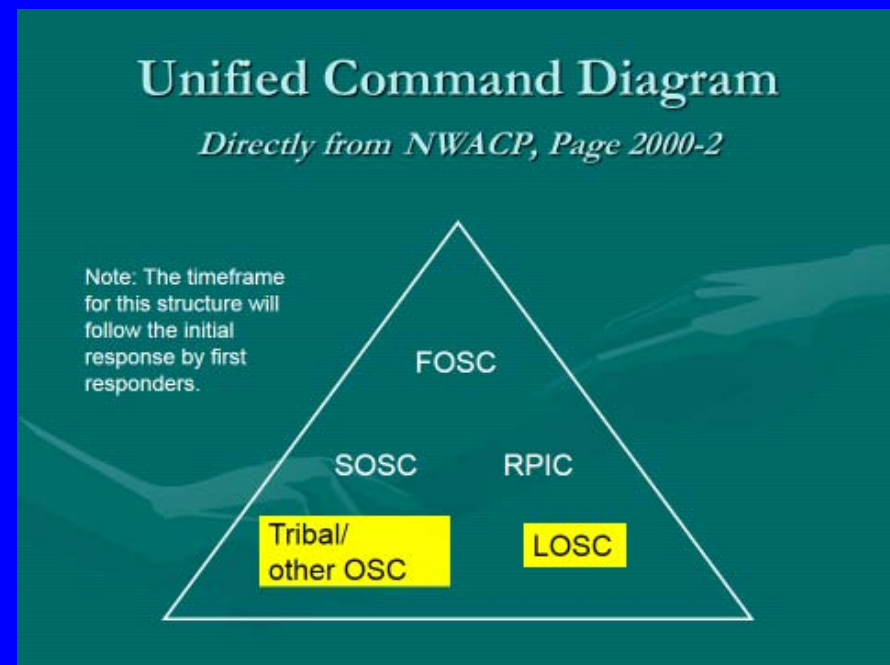
- Reports of incidents involving hazardous substance releases or oil spills are received from local or state counterparts and/or from National Response Center (NRC). Federal law requires owner or operator to provide notifications through the NRC.
- NRC notifies the appropriate EPA or USCG FOSC and other federal, state, and local agencies.
- The FOSC gathers information from local or state authorities and determines need and level of EPA response.
- A responding OSC will assess the incident and, as appropriate, make determinations on access to federal funds from Superfund or Oil Spill Liability Trust Fund.
- During a response, the OSC will collect appropriate documentation for future cost recovery or enforcement actions.

EPA's Response Decision Guidelines



- Federal Trustee involvement
- Viability of Responsible Party
- Beyond capabilities of State/Local/Tribe
- Requests by State/Local/Tribe/Public
- Potential enforcement issues
- Public/Political interest
- Adequate/Reliable info not available

10/6/2014



EPA & Tribal Coordination



- EPA may respond directly to CERCLA or oil releases on tribal lands
- Local Government Reimbursement (LGR) Program available for CERCLA responses
- Tribe may respond to oil spills on behalf of EPA and seek reimbursement
 - Coordination with and concurrence by FOSC required
 - Pollution Removal Funding Authorization
 - Direct claim to fund by Tribe



EPA Emergency Response



- **QUESTIONS ??**
- **EPA Region 10 24-hour duty officer**
 - (206) 553-1263
- **National Response Center**
 - (800) 424-8802



Response Partners and Roles of the Lummi Nation in Hazardous Material Spill Response



Lummi Natural Resources Department
Jeremy Freimund P.H., Water Resources Manager

Hazardous Waste Operations and Emergency Response
24-Hour Training Course: Day 1, Session 2.
Lummi Nation Silver Reef Hotel, Casino & Spa
September 24, 2014



Purpose Statement

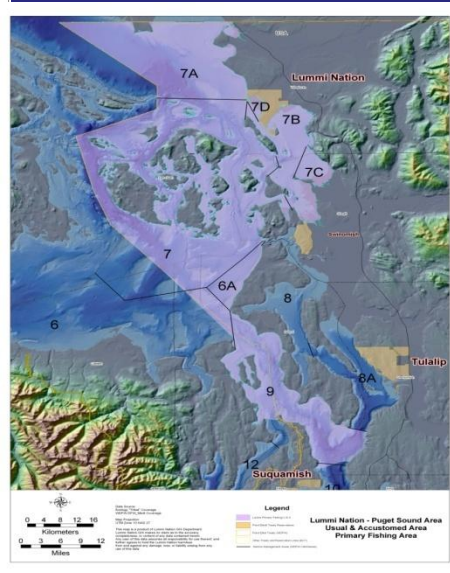
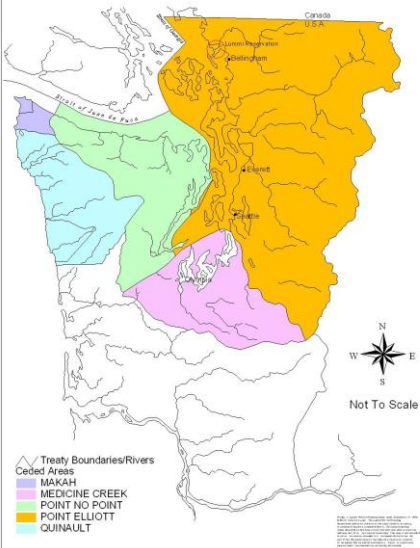
- The purpose of this presentation is to summarize the Lummi Nation's:
 - Locations of Interest;
 - Staff Responsibilities;
 - Response Capabilities;
 - Expected Roles within Response.



Locations of Interest

- Lummi has distributed a call-down list and has requested to be notified of all oil and hazardous material spills within their U&A and throughout their Traditional Territories
- Lummi will respond based on the location, size, and type of spill.

**Ceded Areas
Point Elliot Treaty-1855**





Staff Responsibilities

- Under the Lummi Constitution, the elected Council members have complete authority and responsibility including ensuring the health and safety of the community during emergencies.
- Administrative authority and responsibility for emergency response split between the Police Department and Natural Resources Department.
 - Police protect life, property, and rights of community
 - Natural Resources Department protects natural resources and ability to exercise treaty rights

Staff Responsibilities and Capabilities



- The Lummi Cultural Resources Department and the Lummi Planning Department also have roles during emergency response.
- Lummi has trained over 50 people in various aspects of oil and hazardous material spill response starting in 1997.
- Training levels range from the 4-hour ICS training to 40-hour HAZOWPER.
- Approximately 30 of those individuals who have received training or participated in spill drills still work for Lummi in some capacity.



Response Capabilities

- Although there are a large number and volume of hazardous substances associated with the nearby industries or transported along nearby road or railways, Lummi has focused its hazardous material spill response efforts on petroleum oil spills.
 - Lummi staff are capable of responding and controlling small oil spills on-Reservation.
 - Lummi staff are capable of supporting responses to large oil spills on- or off-Reservation.

Expected Roles Within Response



- For a small spill on-Reservation, Lummi staff have responded by containing spilled material (when appropriate), using sorbents to remove spilled material, and disposing of collected material.
- For larger spills, Lummi staff members would report to the Incident Command location and actively engage at a minimum in the Unified Command as the Tribal On-Scene Coordinator (TOSC).
- Lummi staff members (natural and cultural resources in particular) would likely also participate in the Operations and Planning Section.

Expected Roles Within Response



- The Lummi role within the Unified Command is focused on ensuring:
 - Safety of Lummi tribal members and response personnel
 - A coordinated and effective response effort
 - Protection of environmentally and culturally sensitive areas
 - Containment and recovery of spilled material
 - Keeping the Lummi community informed of the spill situation and response activities
 - Minimizing economic impacts of the spill.



Questions?



Jeremy Freimund, P.H.
Water Resources Manager
Lummi Natural Resources Department
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Ecology Spill Response



Carl Andersen
Bellingham Field Office



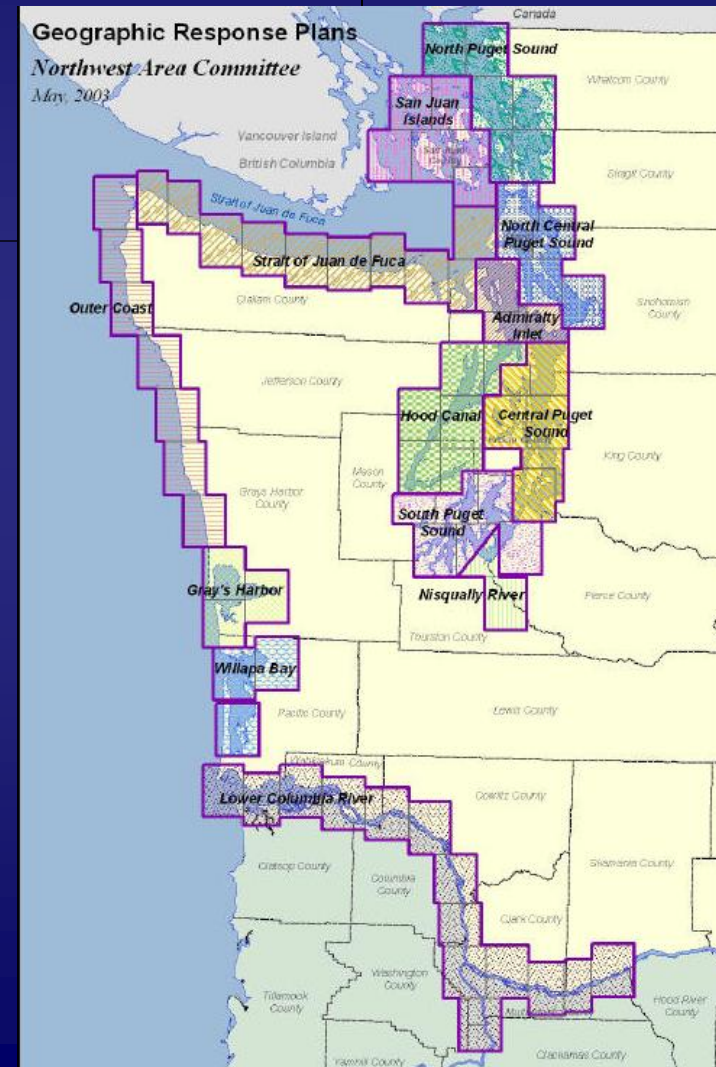
Spills Program - Prevention Section

- **Vessel Inspections**
 - Oil Transfer Inspections
 - Pre-boom Requirement
- Marine/Inland Risk Analysis



Spills Program - Preparedness Section

- Contingency Plan Approval
- Industry Drill Program
- Response Contractor Approval
- NW Area Contingency Plan
- Geographic Response Plans



Spills Program - Response Section



- Oil, hazmat and drug lab cleanup

- Investigation and Enforcement



- Natural Resources Damage Assessment and Restoration

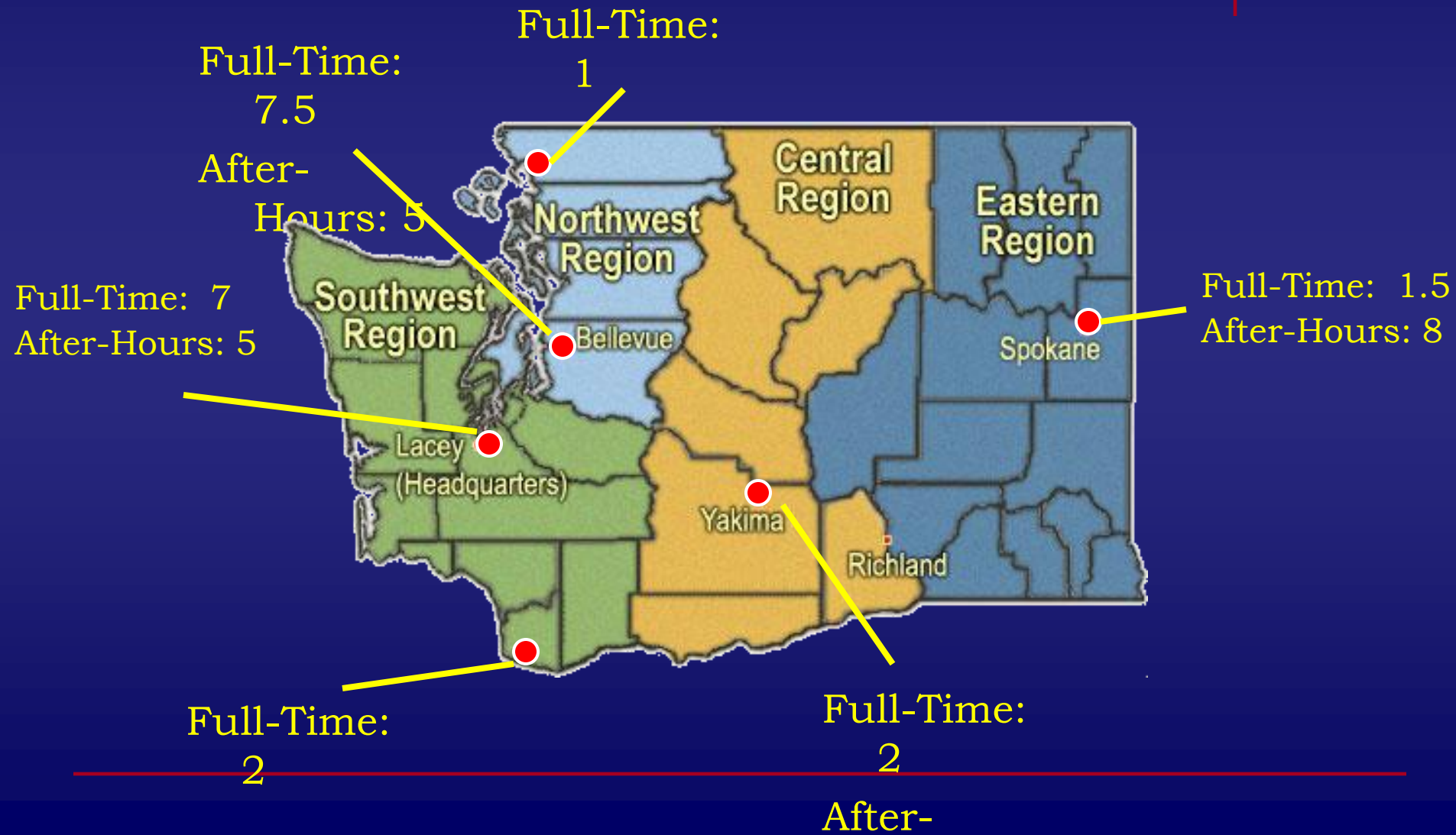


- Training





Response Staffing



Ecology Spill Response Snapshot (last 12 months)



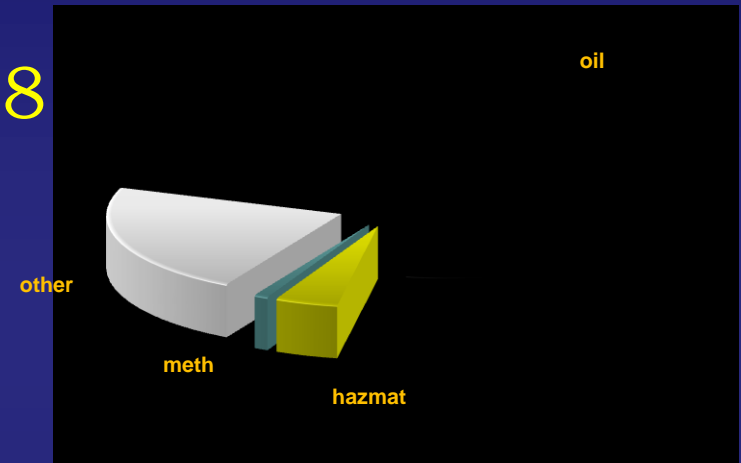
Spill Reports Managed: 3,88

Petroleum: 2,811

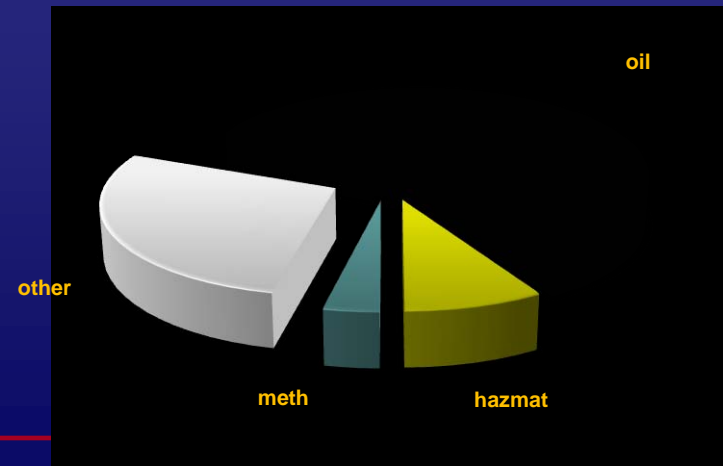
Hazmat: 168

Meth Labs: 38

Other: 864



Field Responses: 815 (21%)



Jurisdiction



- Oil (OPA), Hazardous Substances (CERCLA)
- Pollutants and Drug Labs
- Inland and Coastal Zone
- Surface and Groundwater
- Spills and Threats of Spills
- State NRDA Authority



Ecology Equipment Caches



99 Caches

800 ' Boom

Anchors

Adsorbents

PPE

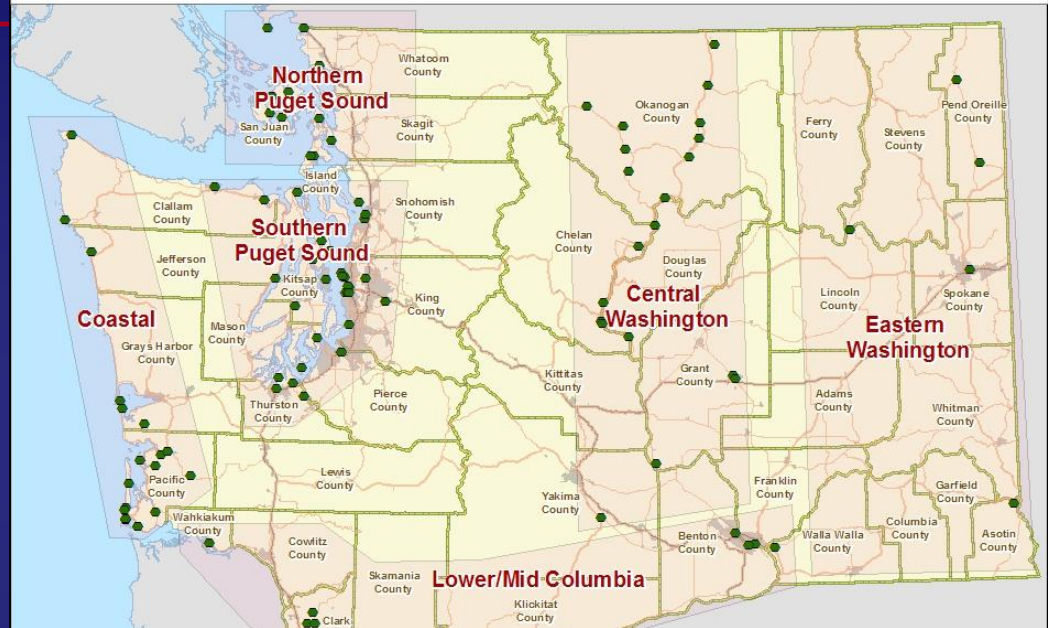
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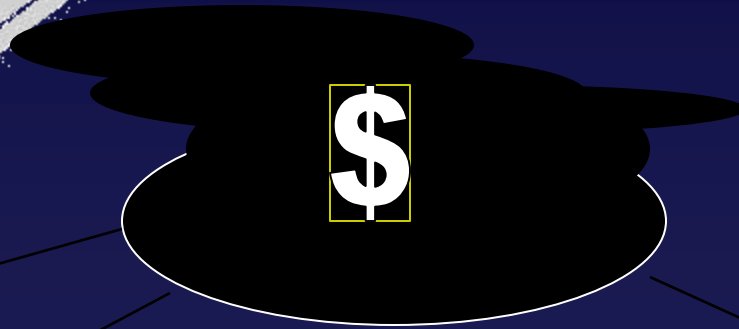
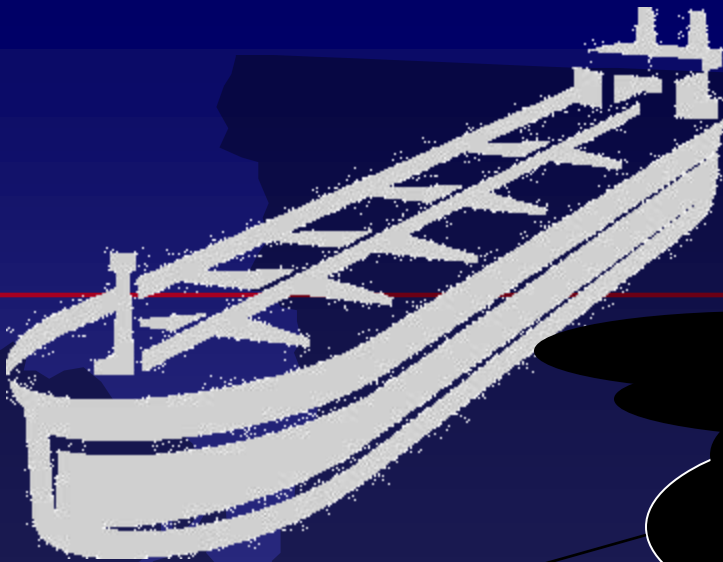
Training

Spill Response Equipment Cache Locations

Legend

- Equipment Locations
- Regions





Response
Costs

Other
Costs

State Agency
Expenses

Spill
Penalties

**Natural Resource
Damage Assessment**

Claims



NRDA Process Choices

Oil Spill (>25 gallons)

STATE RDA COMMITTEE
Compensation Schedule

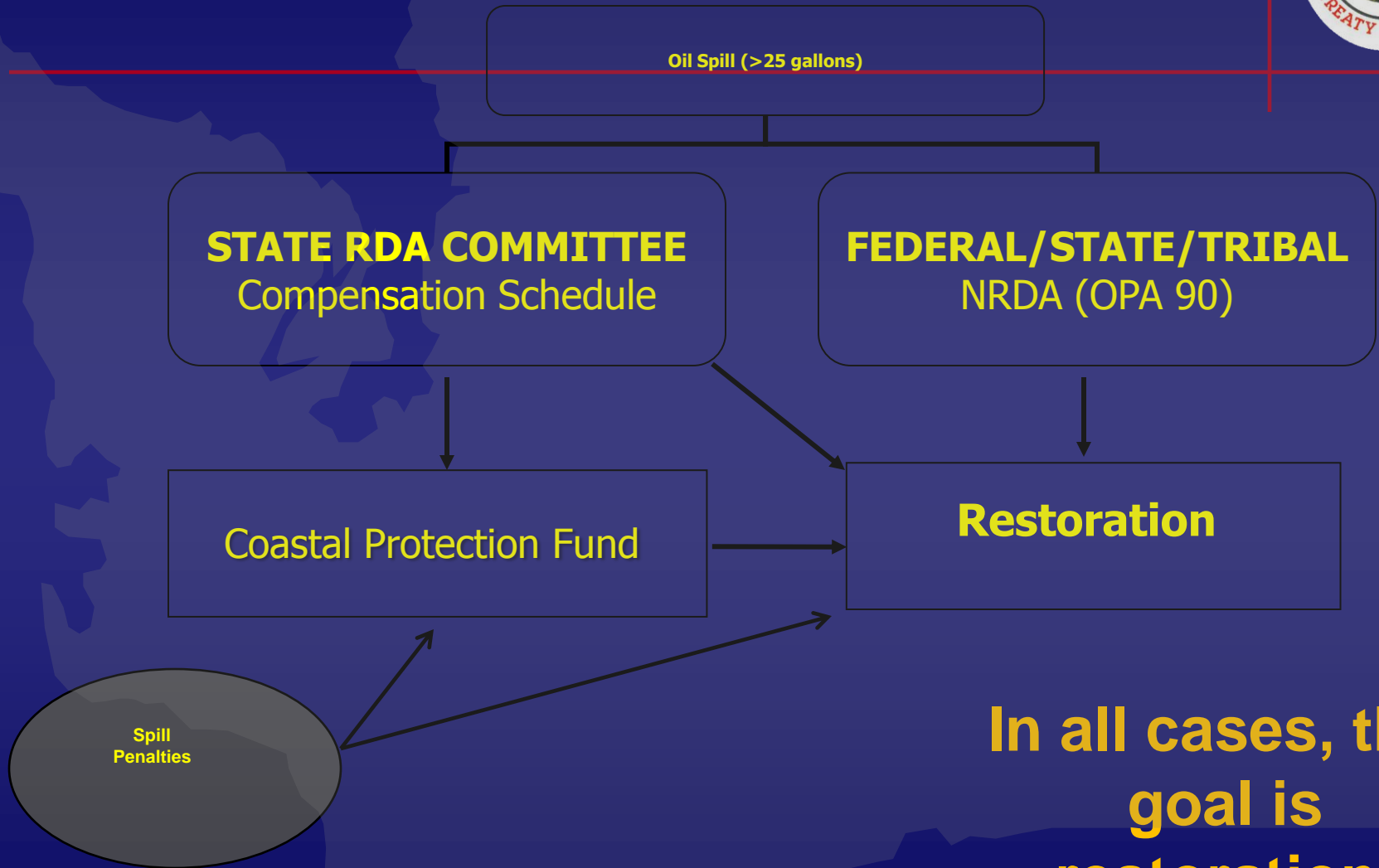
FEDERAL/STATE/TRIBAL
NRDA (OPA 90)

Coastal Protection Fund

Restoration

Spill
Penalties

**In all cases, the
goal is
restoration**



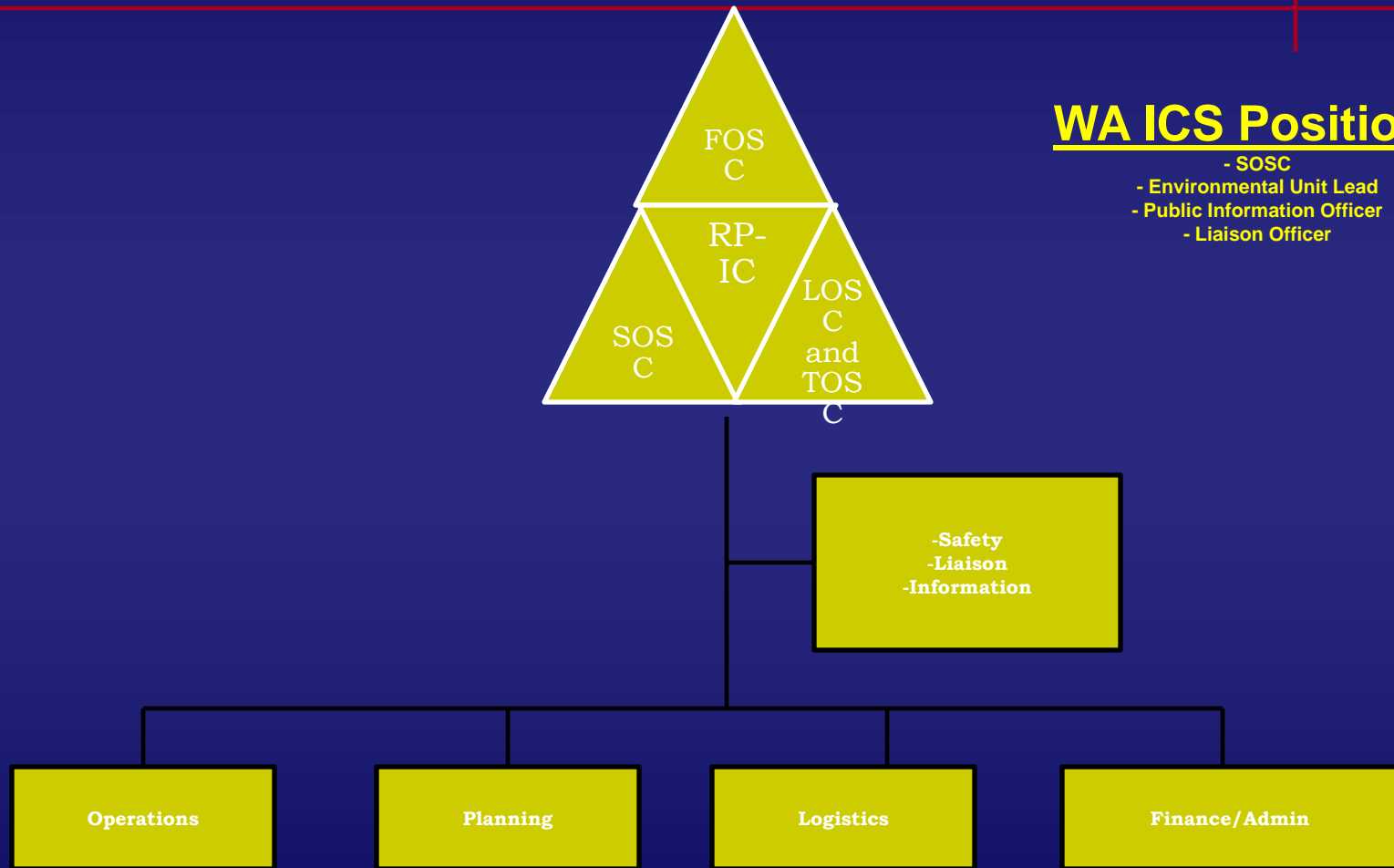


Enforcement Tools

- Penalties
 - Negligence
 - Administrative Orders
 - Notice of Correction
 - Order for Reimbursement of Expenses
-



Incident Management



WA ICS Positions

- SOSC
- Environmental Unit Lead
- Public Information Officer
- Liaison Officer

Questions?



The Role of Industry in Hazmat and Oil Spill Response



Scott McCreery



Industry as Responsible Party

- ▶ *Obligation and Capability to Respond*
- ▶ *Risk-Based Response Planning Standards*
 - ▶ *Tactical Response Resources*
 - ▶ *Response Management Capability*



Response Management

- ▶ *Incident Management Teams (IMTs)*
 - ▶ *Up to 120 Trained and Experienced IMT Members*
 - ▶ *Regional IMTs* ➡ *180+ Members*
 - ▶ *National/Global IMTs* ➡ *400+ Members*



FINANCE

PLANNING

LOGISTICS

OPERATIONS



Tactical Response Resources

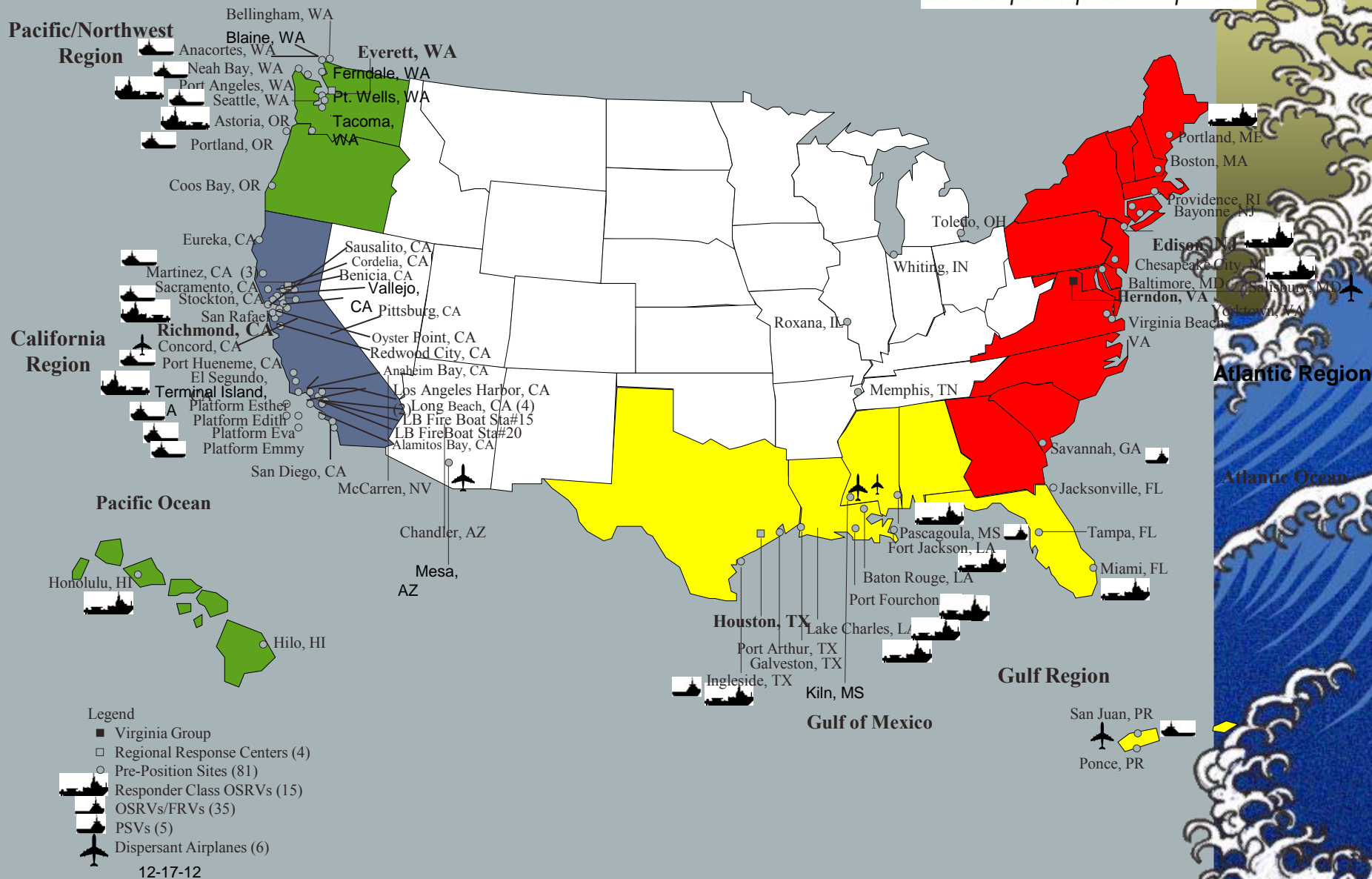


Marine Spill Response Corp.

- ▶ *Marine Spill Response Corporation (MSRC) formed in 1990 as the nation's largest, independent, not-for-profit, dedicated, oil spill response company*
- ▶ *MSRC is funded exclusively by the Marine Preservation Association (MPA)*
- ▶ *570 member companies (refining, terminals, pipelines, shipping & production)*



Regional Response Centers and Areas of Operation



Pacific/Northwest Region

- Washington
- Oregon
- Hawaii



MSRC WA & OR Resources

- 72 Dedicated WA/OR personnel
- 450 Dedicated Personnel Nationwide
- 25 Skimming Vessels
- 30 Portable Skimming Systems
- 268,000 bbls. EDRC
- 4 Recovered Oil Barges
- 130,000 Barrels of Temporary Storage
- 131,000 Feet of Boom (22 nm.)
- 2 Fire Boom Systems
- 14,000 gals of Corexit 9500 Dispersant
- 1 Emergency Communications Package (Comms Suite)



Skimming Vessels



Workboats



Recovered Oil Tank Barges



Portable Skimming Systems



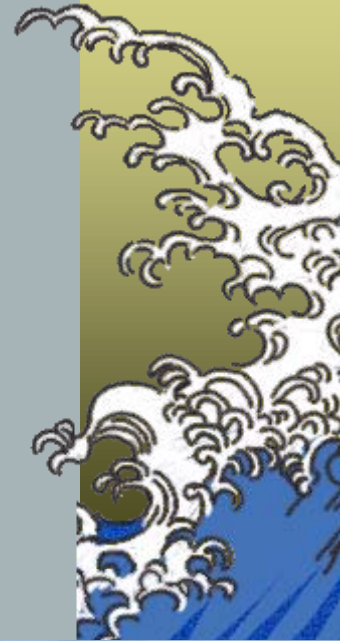
NOFI Current Buster

- Advancing on-water collection system



Containment Boom

- ▶ *131,000' (22 nm.)*
- ▶ *Size range 6" - 67" (float + skirt)*
- ▶ *Foam filled and air filled boom types*



In Situ Burning Capability



Aerial Dispersant Application

- ✦ *Dedicated Aircraft*
- ✦ *Local & National Dispersant Stockpile*



Aerial Surveillance Capability

- ▲ *Capability per both Federal and WA State FRPs and VRPs*
- ▲ *Observers trained to ASTM F1779-08*



Remote Sensing Capability

- ▶ *Multi-spectral imaging, thermal infrared imaging and HD visual imaging via contract aircraft and MSRC-owned Aerostat (balloon) platforms*
- ▶ *Mast-mounted, X-band radar and thermal infrared cameras aboard all MSRC 210' skimmers*



Communications Support

- 7 Emergency Communications Packages nationwide
- Full marine and aviation radio capability
- Dedicated satellite access
- Independent telephone system (96 per ECP)
- Highly portable satellite VOIP packages



Mobile Oiled Wildlife Units



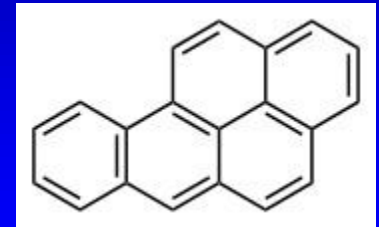
Vessel of Opportunity Program

VOO program is specific to WA State

- Fishing Vessels, Commercial Vessels (Landing Craft, Tugs, Marine Construction/Diving).*
- Tasking includes towing boom in support of skimming ops, GRP deployment support, logistics support.*



Hazardous Materials and Petroleum Chemistry



Eric Lindeman – EPA/START IV
Ecology and Environment, Inc.

What do we hope to Learn?

- The difference between Oil and HazMat
- The basic chemistry of each
- What physical and chemical properties do each of them have
- What do those physical and chemical properties mean to the responder
- Learn some specifics of Chlorine, Ammonia and Hydrogen Sulfide

Haz-Mat Definition

- a material or substance that poses a danger to life, property, or the environment if improperly stored, shipped, or handled:

Oil Definition

- any of a large class of substances typically greasy, viscous, combustible, liquid at ordinary temperatures, and soluble in ether or alcohol but not in water: used for anointing, perfuming, lubricating, illuminating, heating, etc.

Oil definition under NCP

- Petroleum
- Fuel Oil
- Sludge
- Oil refuse
- Oil mixed with Waste except dirt or rock

A Quick Basic Comparison

Oil

- Made of Carbons and Hydrogens, some have Sulfur & traces of other elements.
- Organic
- The numbers of C's & H's make the difference
- Primary hazard is flammability
- Toxicity also concern

HAZMAT

- Made of Carbons, Hydrogens and many other elements/ functional groups
- Organic and Inorganic
- Multiple classes
- Many physical and chemical hazards
- Most are toxic

States of Matter



- **Solids**

- Non-volatile
- Fixed volume and shape
- Non-compressible

- **Examples**

- Red Phosphorous
- Salt
- Iodine

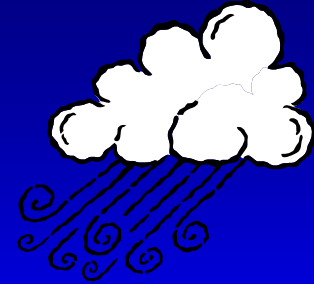


- **Liquids**

- Fixed volume, but not a fixed shape
- Volatile

- **Examples**

- Ether
- Sulfuric Acid
- Gasoline
- Mercury



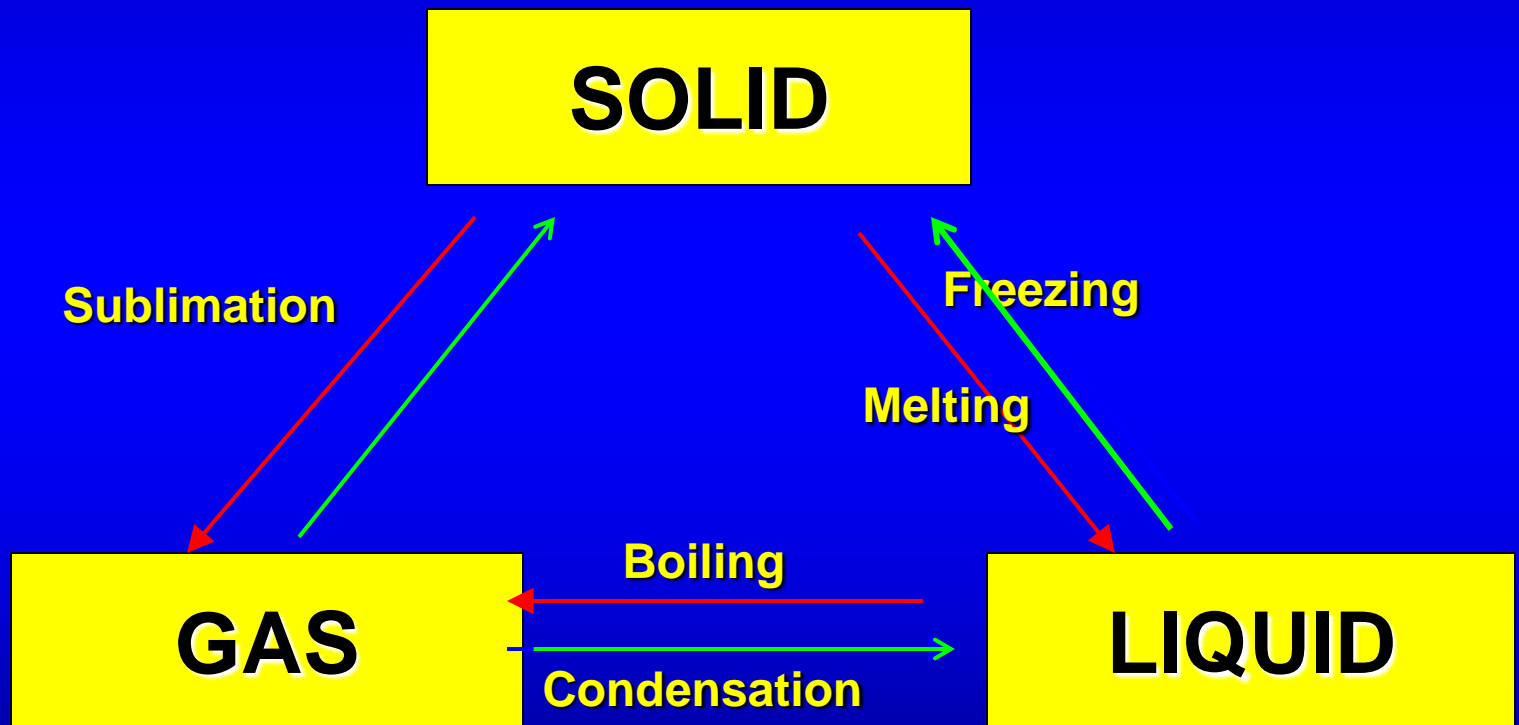
- **Gases**

- No fixed volume or shape
- Compressible

- **Examples**

- Ammonia
- Phosphine
- Hydrogen Chloride
- Methylamine

Effect of Temperature



*Red arrow indicates an increase in temperature

*Green arrow indicates a decrease in temperature

Organics

Chemicals compounds that DO contain carbon and hydrogen combinations in their atomic structure.



Aromatic Hydrocarbons

Benzene Ring:

Backbone of aromatic hydrocarbons - very stable.

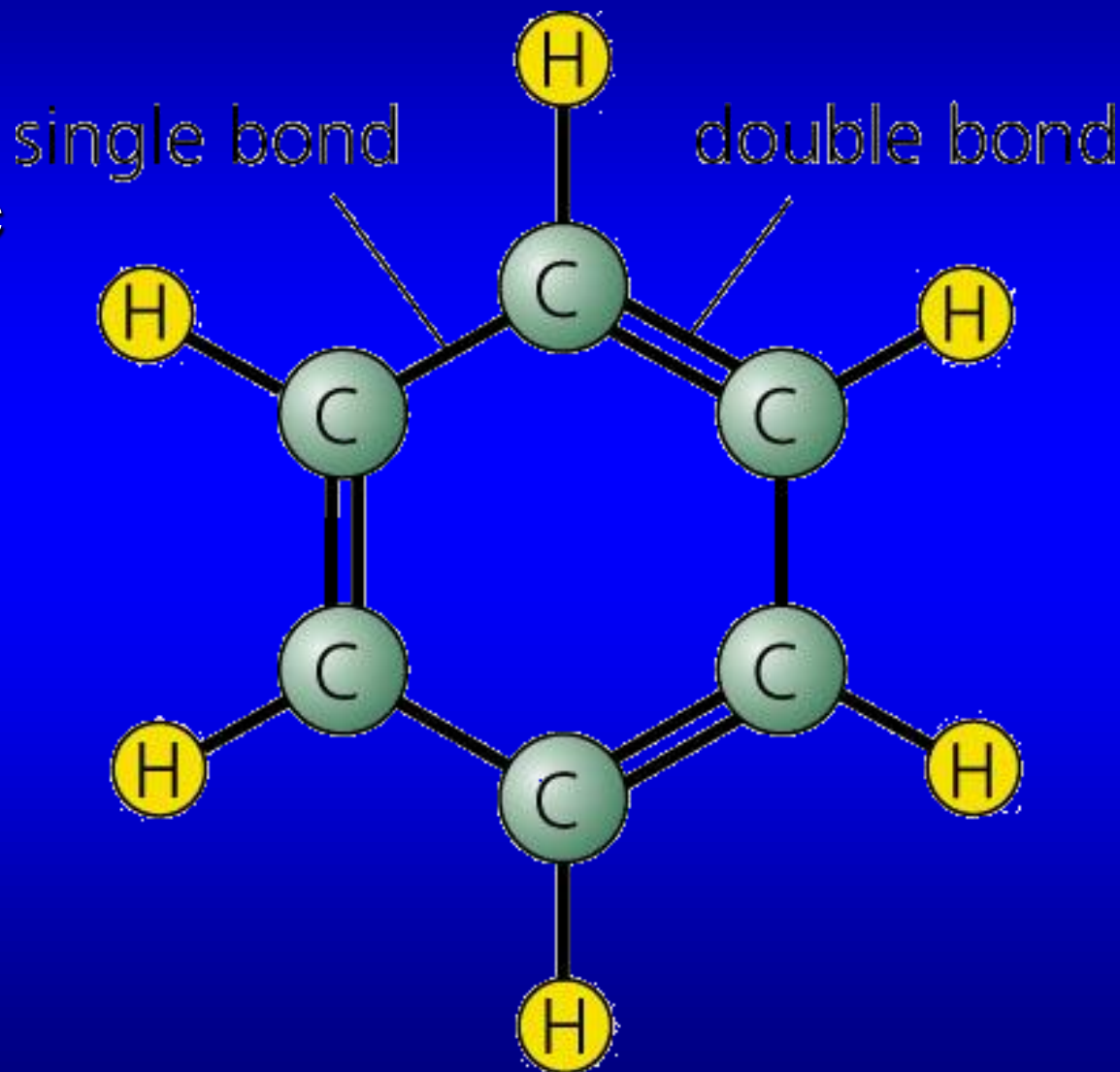
Examples: (BETX)

Benzene

Ethylbenzene

Toluene

Xylene

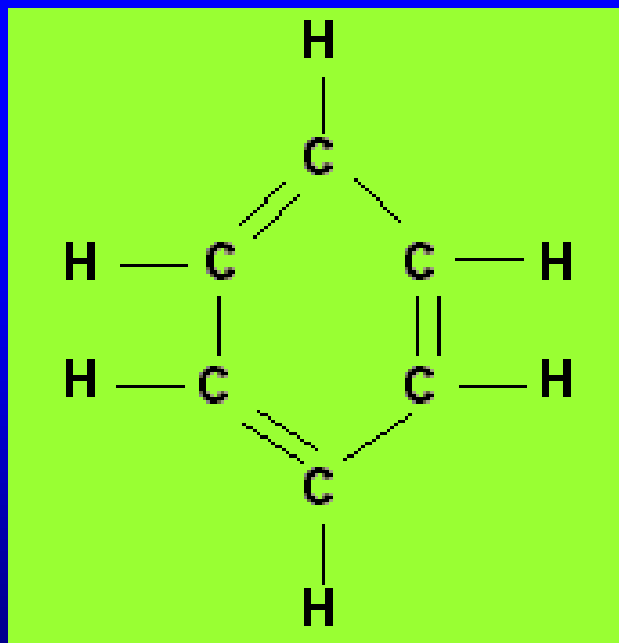


Aromatic Hydrocarbons

BETX

Distinct group of hydrocarbons with very different structures than other hydrocarbon groups.

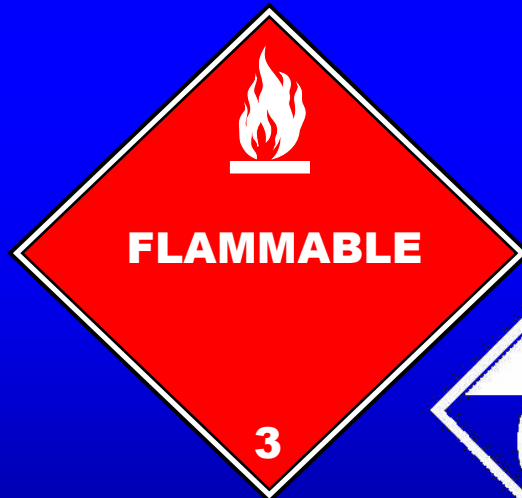
Benzene



Resource Conservation and Recovery Act (RCRA)

Categories of Hazardous Materials/Wastes

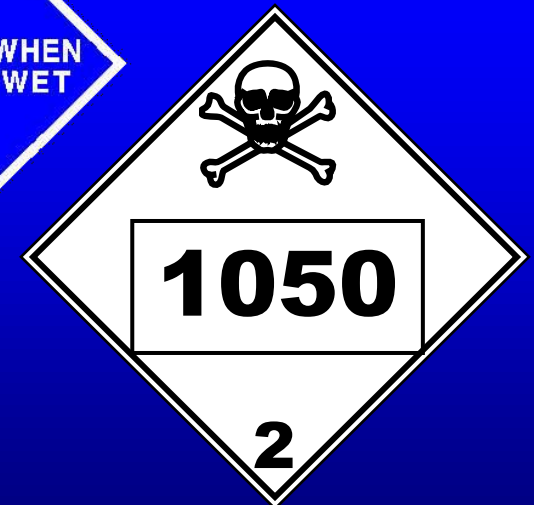
Flammable



Reactive



Corrosive



Toxic

Flammable

- Liquid with a flash point of 140°F (60°C)
- Not a liquid and capable under normal conditions of causing fire through friction, adsorption of moisture or spontaneous chemical changes, and when ignited, burn vigorously and persistently; or
- Ignitable compressed gases and oxidizers, as identified by DOT (49 CFR 173)

Flammable

Organics

- Coleman Fuel
- Propane
- Methyl Alcohol
- Ethyl Alcohol
- Isopropyl Alcohol
- Ether
- Acetone

Inorganics

- Phosphine
- Ammonia
- Hydrogen
- Sulfuric Acid (battery acid)

Corrosives

ACIDS

Hydrochloric Acid
(HCl)

Hydrogen Chloride
Gas (HCl)

Sulfuric Acid (H_2SO_4)

Nitric Acid (HNO_3)

Acetic Acid
(CH_3COOH)

Citric Acid

BASES

- Sodium Chloride
(NaCl) (Table salt)
- Ammonium
Hydroxide (NH_4OH)
- Anhydrous
Ammonia (NH_3)
- Calcium Hydroxide
($\text{Ca}(\text{OH})_2$)

Corrosive Reactions

- Acids typically corrode metals producing flammable hydrogen gas
- Acids and bases destroy human tissue
- Acids react with bases to produce heat and gases



pH of Common Items

	14.0	Sodium Hydroxide
CAUSTIC	12.5	RCRA haz. waste
BASIC	12.0	Household ammonia
ALKALINE	10.0	Detergents and Baking Soda
	8.0	Seawater
	7.4	Blood
<u>NEUTRAL</u>	<u>7.0</u>	Pure water
	6.0	Rain
	4.0	Beer
	3.0	Orange juice, vinegar, wine, acid rain
ACIDIC	2.0	RCRA haz. waste /lemon juice, stomach acid
	1.0	Strong acids, HCl
	0.0	Very acidic

CORROSIVE CONCENTRATION TERMINOLOGY

**A. ANHYDROUS, GLACIAL, FUMING
(NO WATER)**

**B. CONCENTRATION → 35%-98%
(WATER SOLUTION)**

C. DILUTE → 10% OR LESS

**If spill or release is outside, the acid or base becomes
more concentrated as the water evaporates.**

Physical and Chemical Properties

MW-Molecular Weight

BP-Boiling Point

Sol-Solubility in Water

Fl.P.-Flash Point

I.P.-Ionization
Potential

Sp.Gr.-Specific
Gravity

VP-Vapor Pressure

MLT-Melting Point (solids)

FRZ-Freezing Point
(liq/gas)

UEL-Upper Explosive Limit

LEL-Lower Explosive Limit

RGasD-Relative Density of
gases (relative to air)

Chemical and Physical Properties

- **MW - Molecular Weight**
 - MW of Air is 29
- IP - Ionization Potential
 - Lowest energy level at which a molecule of the substance may be ionized
 - We'll discuss the IP when we cover the PID air monitoring instrument

Chemical and Physical Properties

- **Sol – Solubility***

- The percentage of a material (by weight) that will dissolve in water at STP (68 °F, 1 atm)
- Solubility provided for solids, liquids and gases
- Miscible means the material is “mixable” or will completely go into solution



Solubility Terms

Degree of Solubility in Distilled Water at 50° F	Percentage
Negligible	< 0.1
Slight	0.1-1
Moderate	1-10
Appreciable	> 10
Complete/Miscible	In all proportions

Look up Ammonia

Chemical and Physical Properties

- **Sp. Gr - Specific Gravity**

- Weight of a chemical in comparison to an equal volume of water

$$\text{Sp.Gr.} = \frac{\text{Weight of a gallon of substance}}{\text{Weight of a gallon of water}}$$



Specific Gravity of liquids:

< 1 Insoluble materials
will float in (or on)
water



> 1 Insoluble materials
will sink in water



Soluble/Miscible materials
will mix with water





VP - Vapor Pressure

- Indication of the ability of a substance to evaporate (liquid to gas or vapor)
- Evaporation rate increases with an increase in temperature
- The larger the value, the more volatile the substance
- The pressure exerted by a saturated vapor above its own liquid in a closed container

Vapor Pressure

- **High vapor pressure => high inhalation hazard**
Normal atmospheric pressure: 760 mm Hg
- **Examples of vapor pressures:**
 - Water: 25 mm Hg - slow evaporation
 - Acetone: 270 mm Hg - fast evaporation
 - Sulfuric acid: 0.01 mm Hg - almost no evaporation
 - Ammonia: 8.5 atm (atmospheres) - exists as gas

 **BP** =  **VP** =  **volatility** =  **flammability**

 **BP** =  **VP** =  **volatility** =  **flammability**

Specific Chemicals

Chemical	VP	BP	LEL	MW
Ammonia	8.5 ATM	-28°F	15%	17
Chlorine	6.8 ATM	-29°F	NA	70.9
Hydrogen Sulfide	17.6 ATM	-77°F	4%	34.1
Sulfuric Acid	0.001 mmHg	554°F	NA	98.1
Hydrofluoric acid	783 mmHg	67°F	NA	20.0

Remember: 1 ATM = 760 mmHg

1 ATM = 14.7 psi

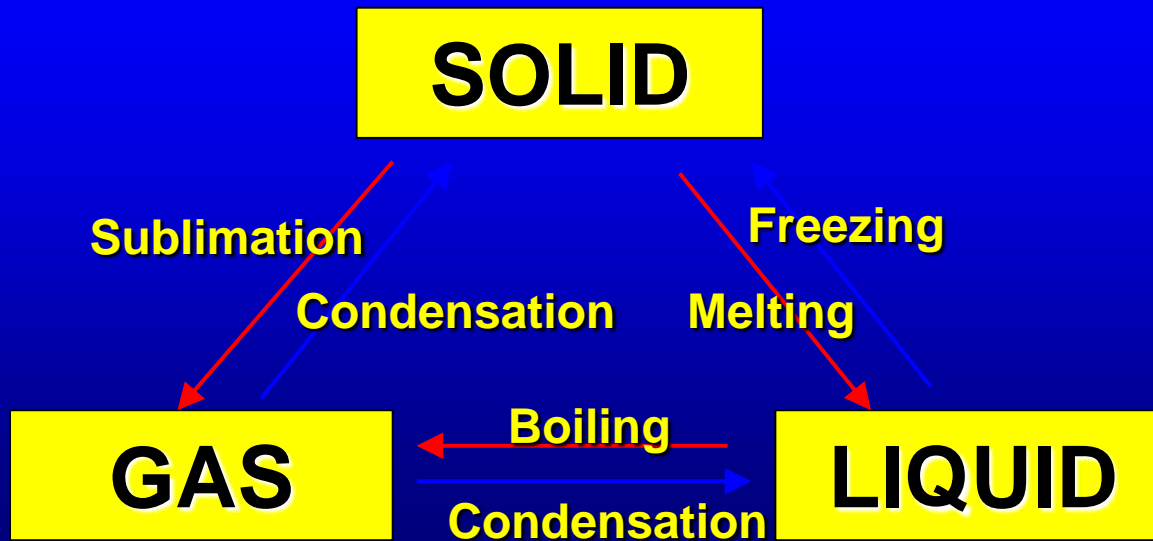
1 ATM = 29.92 inHg

Vapor Pressure Street Guidelines

Vapor Pressure	Hazard	Distance Vapors Travel
0-10 mmHg	Little concern	< 1 foot above liquid
> 100 mmHg	Inhalation concern	> 3-4 feet above liquid (breathing zone)

Chemical and Physical Properties

- **FRZ - Freezing Point**
 - Temperature at which a liquid or gas begins to change to a solid
- **MLT - Melting Point**
 - Temperature at which a solid begins to change to a liquid
- **BP - Boiling Point**
 - in °F at 1 atmosphere (760 mmHg)



Chemical and Physical Properties

- **Flammability**

- **Fl. P - Flash Point**

- The temperature at which the liquid phase gives off enough vapor to flash when exposed to an external ignition source

Flammable Range



- **LEL - Lower Explosive Limit**
 - The minimum concentration of a vapor in air that will produce a flash of fire when an ignition source is present
- **UEL – Upper Explosive Limit**
 - The maximum concentration of a vapor in air that will produce a flash of fire when an ignition source is present

Flammable Range



Concentration of vapor in air

Chemical	Flash Point	LEL	UEL
Gasoline	-45 oF	1.4%	7.6%
Methyl Alcohol	52 oF	6%	36%
Acetylene	NA	2%	100%



Modified Toyota Pick-up



Basics of Crude Oil

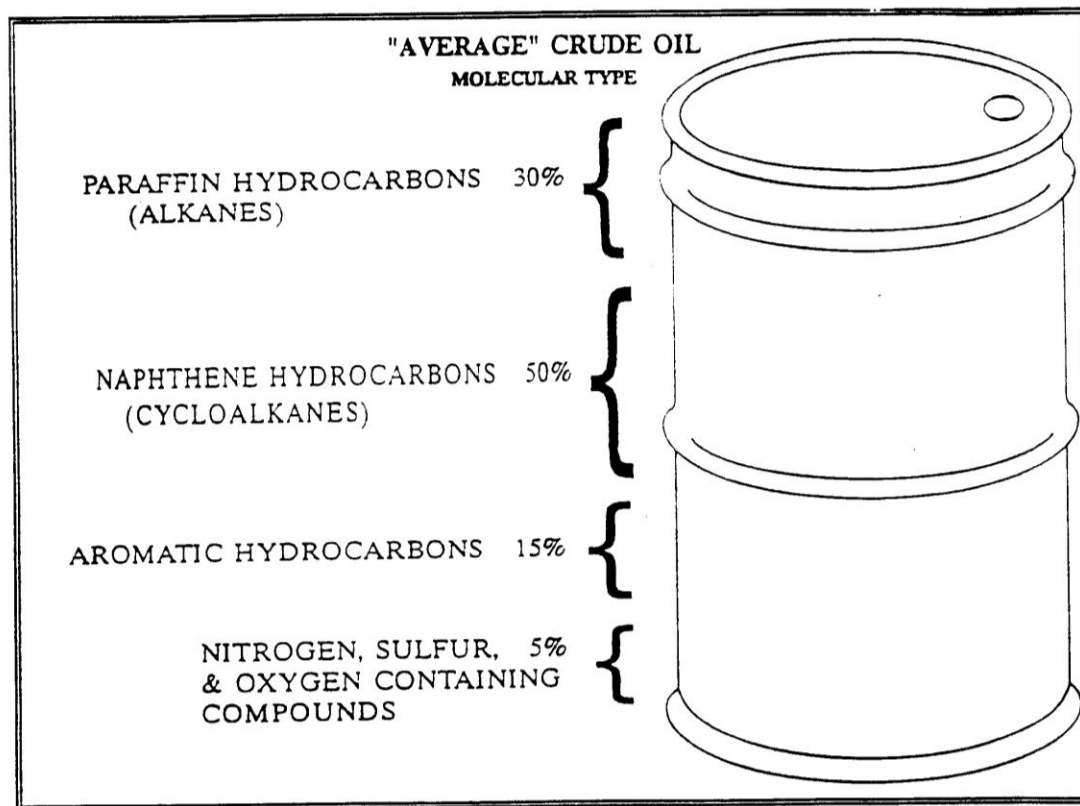
- Crude Oil - very complex mixture of hundreds, even thousands of chemical compounds
- Chemical composition can vary tremendously
 - From different producing regions
 - Possible even within a particular formation

Basics of Crude Oil

- Hydrocarbons are most abundant compounds in crude oil
 - Carbon (80 – 87%)
 - Hydrogen (10 - 15%)
- Non-hydrocarbon compounds, typically <10%
 - Sulfur (0 -10%)
 - Nitrogen (0 – 1%)
 - Oxygen (0 - 5%)
 - Trace Metals
 - V, Ni, Fe, Al, Na, Ca, Cu, U

Basics of Crude Oil

Average Constituents



"AVERAGE" CRUDE OIL MOLECULAR TYPE

Source: U.S. EPA manual for "Inland Oil Spills" course

Basics of Crude Oil Refining Fractions

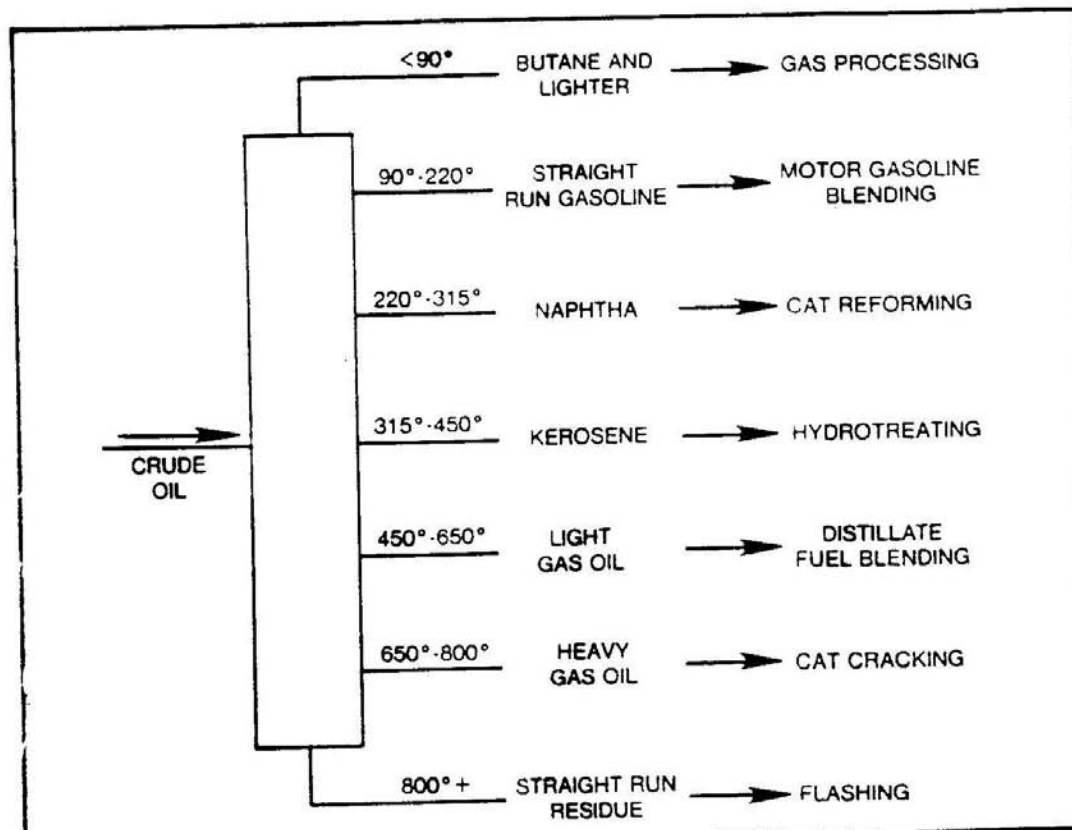


Fig. 3-11 —Distilling Crude and Product Disposition

Basics of Crude Oil

Terminology

- Light Crudes - have more “light ends”, such as gasoline, naphtha, and kerosene fractions
- Heavy Crudes have more heavy ends such as asphaltenes (higher molecular weight)
- Sweet, Sour Crudes: refer to amount of sulfur present
 - Sweet < 0.5% sulfur compounds
 - Sour < 2.5 % sulfur compounds

Basics of Crude Oil

Terminology

- API Gravity – a specific scale, created by API, for measuring the relative density of petroleum liquids, expressed in degrees.
 - $\text{API Gravity} = (141.5 / \text{Sp.Gr at } 60^\circ \text{ F}) - 131.5$
- Rule of Thumb
 - Higher API Gravity = lighter the crude, less viscous, more light ends
 - Heavy Crudes ~ API 18°
 - Light Crudes ~ API 36° and above

Basics of Crude Oil

What does this mean for Oil Spill Response?

- Speaking with same knowledge of terminology
- Different types of crudes (and refined products) have differing fate and transport when spilled
 - Heavy vs light, API Gravity?
- Types of crudes important for Health & Safety, e.g. Sour oil will have H₂S present
 - Air monitoring at spill, what to look for at production site, etc.

General Spill Types and Behavior

Four Types

- Very Light Oils (Jet Fuels, Gasoline)
- Light Oils (Diesel, No. 2 Fuel Oil, Light Crudes)
- Medium Oils (Most Crude Oils)
- Heavy Oils (Heavy Crude Oils, No. 6 Fuel Oil, Bunker C)



Petroleum Products

- Gasoline -- 4 to 12 C (carbons), bp -1 to 200 °C.
- Napthas – 6 to 14 C, bp 175 to 240 °C (Stoddard solvent is a naptha).
- Kerosene – 12+ C, bp 205 to 260 °C.
- Jet Fuels – blend naptha, gas and kerosene for desired characteristics.
- Fuel Oils – 1 and 2 are lighter distillates, 4 through 6 are residuals (bottoms) cut with lighter oils (bunker oil).
- Diesel – 10-28 C, bp 175-340 °C.
- Lubricating Oils – 25-40 C, bp >400 °C.

Key Chemical or Physical Properties of Oils

Solubility

- the ability to dissolve in water. Oil and water do not mix, and oil will generally not dissolve in water, but some of the components of oil will dissolve in water.

Viscosity

- refers to a liquid's resistance to flow and therefore affects the rate at which a spilled liquid will spread. Low viscosity = more easily it flows (thinner). Higher viscosity = less easy it flows (thicker).

Volatility/Evaporation

- the molecular process of a liquid changing to a vapor. Affects how quickly oil will evaporate. Contributes to the weathering of spilled oil. Oils are made of thousands of compounds and do not evaporate at a constant rate.

Density/Specific Gravity

-the measure of a material's density compared to water, where the SG of water = 1.0. SG and density indicate whether a spilled material will sink or float on water.
(1, <1, >1)

Weathering Process of Oils

- Evaporation – single most important process over the first few days
 - Gas – 100%
 - Crude Oils – 20-60%
 - Bunker C – 5-10%
- Dissolution – Chemicals in water
 - Benzene, toluene, xylene
 - Toxic to aquatic organisms

Weathering Process of Oils (cont.)

- Emulsification – mixing of oil and water
 - Viscous and sticky
 - Recovery equipment works poorly on mousse
 - Slows weathering
 - Greater viscosity
 - Increases oil volume 2-3 times
 - Typically happens to crudes, not gas/diesel



Oil in the Environment - Interaction Processes

- **Evaporation** – single most important process over the first few days (is directly related to volatility/vapor pressure and ambient temperature)
 - Gasoline – up to 100%
 - Crude Oils – 20-60%
 - Bunker C – 5-10%
- **Dissolution** – chemicals dissolve in in water
 - Benzene, toluene, xylene
 - Toxic to aquatic organisms

Oil in the Environment - Interaction Processes, cont'd.

- **Emulsification** – the mixing of oil and water – can form a viscous and sticky “mousse”:
 - Recovery equipment works poorly on mousse
 - Slows weathering
 - Increases oil volume 2-3 times
 - Typically happens to crude oils, not gasoline or diesel



Oil in the Environment - Interaction Processes, cont'd

- **Aggregation** - oil aggregates, or consolidates, in the form of lumps, tar balls, or pelagic tar. Aggregates can be found in rivers, open water, and beaches.
 - Aggregates can:
 - range in size from 1 mm – 50 cm.
 - exist for weeks to years.
 - degrade slowly and are persistent in the environment.



American Petroleum Institute

Numerical Scale for Relative Persistence of Oil and Oil Products in the Aquatic Environment

Oil/Oil Product	Relative Persistence Ranking ¹	Persistence Classification
Gasoline	1	"relatively nonpersistent"
Jet Fuel	2	
No. 2 Fuel Oil	8	
Lube Oils	55	"slightly persistent"
Light Crude Oil	320	"highly persistent"
No. 6 Fuel Oil	400	
Medium Crude Oil	450	
Heavy Crude Oil	590	
Residual Asphaltenes	1,600	

Relative ranking with "1" being least persistent to "1,600" being extremely persistent.

Sheen vs. Rainbow



Region 10

Dominant Crude Oils



- Alaska North Slope
- Bakken Shale
- Alberta Oil Sands/Tar Sands

Region 10 Presence

- Tesoro Anacortes - 40,000 bbl/day
- BP Cherry Point - 20,000 bbl/day
- Columbia Pacific Bio-Refinery
 - 67,000 bbl/day
- Tesoro Vancouver – 2014 (120,000 – 280,000 bbl/day)
- Gray's Harbor – under consideration
- Port of Lewiston – under consideration

Response Considerations

- Properties
- Tactics
- Toxicity

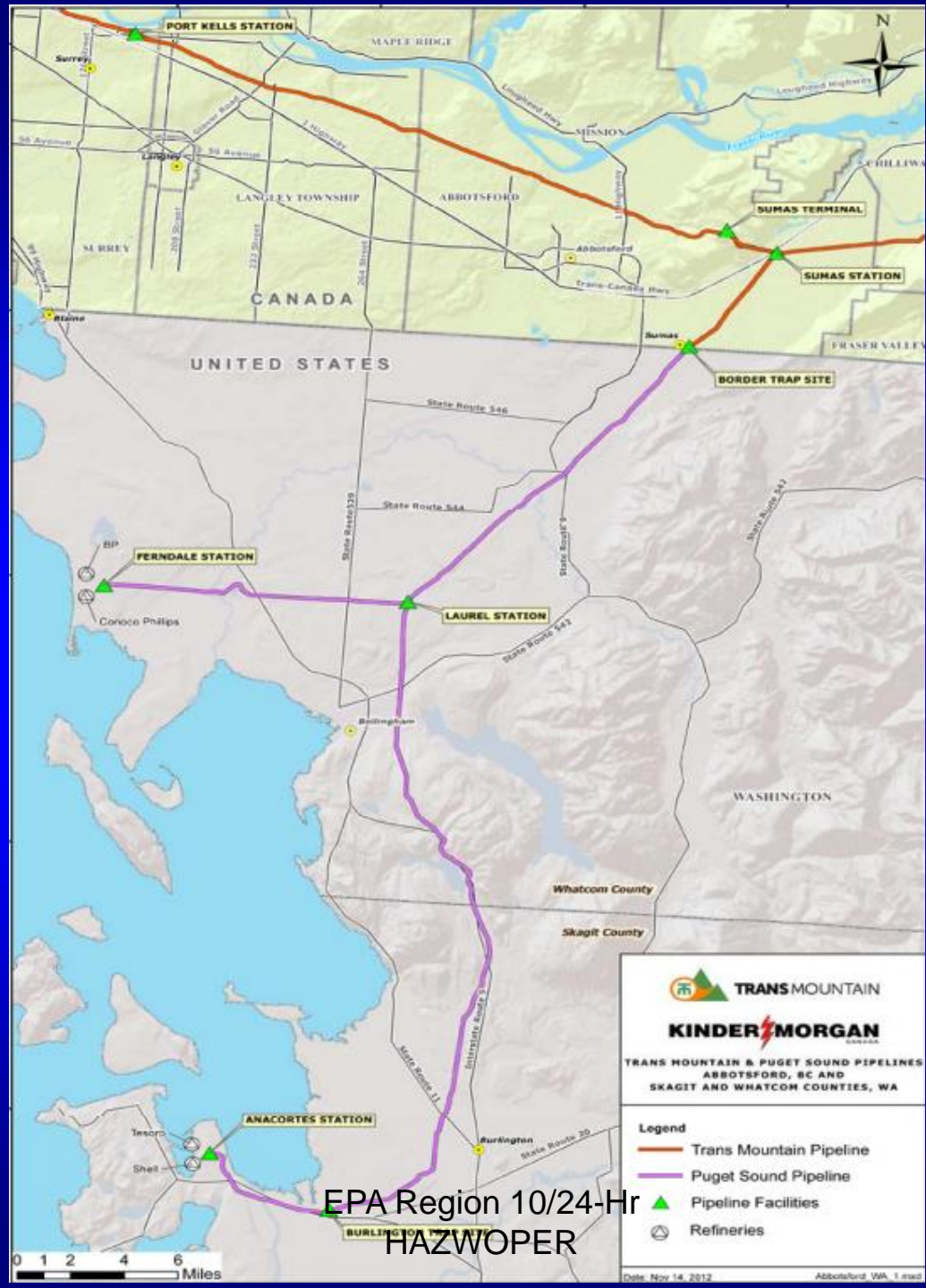
cenovus ENERGY		LIGHT CRUDE OIL
1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION		
Product Identifier:	LIGHT CRUDE OIL	
Synonyms:	Bakken Oil, Bakken Crude	
Chemical Description:	A naturally occurring mixture of aromatic hydrocarbons and small amounts of sulfur and nitrogen compounds	
Product Use:	Process stream, fuels and lubricants production	
Manufacturer/Supplier:	CENOVUS ENERGY INC. 500 Centre Street SE, PO Box 766 Calgary, AB T2P 0M5	
Prepared By:	Cenovus Energy Inc. Health and Safety	
Phone Number:	1-403-766-2000	
Emergency Telephone:	1-877-458-8080, CANUTEC 1-613-996-6666 (Canada)	
2. COMPOSITION/INFORMATION ON INGREDIENTS		
Hazardous Ingredients	CAS Number	Approximate Concentration (%)
Petroleum Crude Oil	8002-05-9	100 v/v
Benzene	71-43-2	0.1 – 1.0 v/v
Hydrogen Sulfide in liquid is <0.1% v/v, vapour phase may contain higher concentrations.		
3. HAZARDS IDENTIFICATION		
Routes of Entry:	Skin contact, skin absorption, eye contact, inhalation, ingestion	
Emergency Overview:	Warning. Flammable liquid and vapour. Liquid and vapour may cause irritation or burns to eyes, nose and throat. Inhalation of vapour may cause dizziness and drowsiness. Possible cancer hazard (benzene). Possible asphyxiation hazard (hydrogen sulfide). Wear personal protective equipment appropriate for the task.	
WHMIS B2, D2-A, D2-B NFPA F4, R0, H3		 
Potential Health Effects: Contains material which may cause cancer after long-term, repeated skin contact.		
4. FIRST AID MEASURES		
Eye Contact:	Immediately flush eyes with large amounts of lukewarm water for 15 minutes, lifting upper and lower lids at intervals. Seek medical attention if irritation persists.	
Skin Contact:	Remove contaminated clothing. Flush skin with water. Get medical attention if irritation persists or large area of contact. Decontaminate clothing before re-use.	
Inhalation:	Ensure own safety. Remove victim to fresh air. Give oxygen, artificial respiration, or CPR if needed. Seek medical attention immediately.	
Ingestion:	Give 2-3 glasses of milk or water to drink unless patient is unconscious or has a decreased level of alertness. DO NOT INDUCE VOMITING. Keep patient warm and at rest. Seek medical attention immediately.	

Prep for transport

- Upgrade: Synthetic Crude = SynBit
 - Remove carbon, add hydrogen
- Dilute: Diluted Bitumen = Dilbit
 - Paraffinic (C6-C6 natural gas condensates)
 - Naphtha or gas oils, conventional crudes
 - Can span a wide range of compositions

Prep for transport

- Bitumen is “blended” with light oil to meet transmission pipeline specs
 - Needs 30% by volume of diluent for dilbit
 - Needs 50% by volume of synthetic crude for synbit
- Railcar/vessel specs vary



9/2014

EPA Region 10/24-Hr
HAZWOPER

58

	Benzene Content (%)
Dilbit	0.03 - 0.3
Synbit	<0.5
Bakken	0.1 - 1.0
ANS	0.3

Spills

- If a spill of oil sands products were to occur, responders will have to prepare for both a light, floating oil depending on the diluent used and the potential for a heavy, submerged or sinking oil

Response Considerations

- MSDS Availability
- Properties
 - Content of lowest boiling components that boil below 200 F
 - Air quality immediately after spill
 - Rate of loss
 - Contents of highest boiling components
 - Submerged and Sunken oil?

Questions?



Spill Response Safety and Training Requirements

Site-Specific Safety Plan (SSP/ HASP) Purpose

- * Address the health and safety hazards that may exist at each phase of site operations and to identify procedures for protecting employees from these hazards

Site-Specific Safety Plan (SSP/ HASP) Elements

- * Health and Safety Plan (Site-Specific/On Site)
 - * Hazard analysis/Preliminary Evaluation
 - * Organization Chart/Chain of Command
 - * Roles and Responsibilities
 - * Comprehensive work plan/Site History/Background
 - * Site control plan/Work Zone
 - * **PPE/Respiratory Protection Plan**

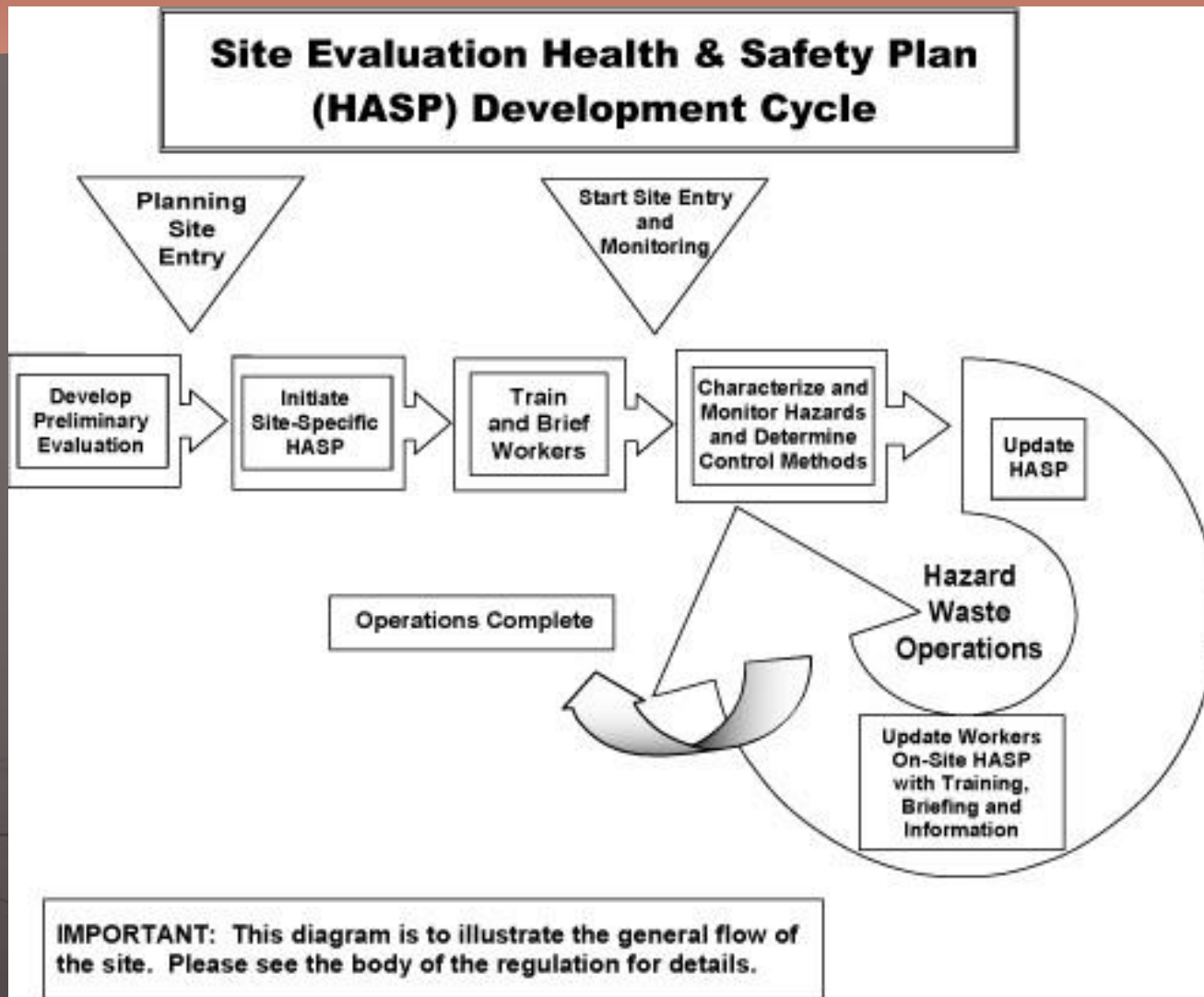
Site-Specific Safety Plan (SSP/ HASP) Elements

- * Health and Safety Plan (Site-Specific/On Site)
 - * Training required
 - * Physical Hazards
 - * Chemical Hazards
 - * Air Monitoring
 - * Communications
 - * Emergency Procedures
 - * Emergency Response

Site-Specific Safety Plan (SSP/ HASP) Elements

- * Health and Safety Plan (Site-Specific/On Site)
 - * Site Map
 - * Buddy System
 - * Confined Space Entry
 - * HazCom/GHS
 - * Plan Acceptance/Site Roster
 - * Additional elements:
 - * Sampling, decon, containment, sanitation, lighting, SOPs, entry procedures, medical monitoring, etc.

HASP Development



Preparation for Spills

- * Equipment
- * Personnel
 - * Training - HAZWOPER
 - * Medicals
 - * Respirators/PPE
- * Identify and Map out:
 - * What industry is in the area
 - * What shipping goes through your town
 - * Environmental Risks – Sensitive Areas



What should you do first?



General Spill Response Actions

- * Assess the Situation
- * Stop the Product Flow
 - * Use common sense; act quickly; shut off pump; close valve; damage control measures
 - * **SAFETY OF PERSONNEL IS PARAMOUNT**
- * Warn People in Immediate Vicinity
 - * Evacuate, if necessary
 - * Enforce “NO SMOKING”
- * Shut Off Ignition Sources
 - * Extinguish flame
 - * Check for motors, electrical circuits, etc.

General Spill Response Actions

- * Contain the Spill
 - * Block off drains, culverts, ditches
 - * Surround product with earth, straw, sand, boom sorbents
 - * Get ahead of leading edge: what's down stream, ID sensitive areas, Geographic Response Plan
- * Obtain Required Assistance from Others
- * Notify Applicable Government Agents
- * Commence Recovery, Clean-up and Restorative Actions

Health and Safety

- * Personnel Protection
- * Site Safety Issues
 - * Hypothermia/Heat Stress
 - * Slips/Trips/Falls
 - * Fire
 - * Boat Safety/Drowning
 - * Currents/Water Flow
 - * Biological hazards



Personnel Protection

- * Respirators
- * PPE
- * Air Monitoring



Four Levels of Personal Protection



Level A



Level B



Level C



Level D

Air Monitoring

- * Combustible Gas Indicator (CGI)
 - * Oxygen (**Action Levels: <19.5% to >23.5%**)
 - * LEL (**Action Levels: >10%**)
 - * Toxic gases – Benzene, H₂S, CO, NH₃, CL₂, etc.
 - * (Action Levels: Chemical Specific for Level of PPE Protection)
- * Photo Ionization Detector (PID)
- * Flame Ionization Detector (FID)
- * Colorimetric Tubes

What Exposure Guidance to use

- * OSHA
- * NIOSH
- * ACGIH (American Conference of Governmental Industrial Hygienists)

Potential Contaminates

- * Benzene
- * Benzo (a) pyrene
- * Carbon Dioxide
- * Carbon Monoxide
- * Ethyl Benzene
- * Hydrogen Sulfide
- * Methyl tert-butyl ether
- * Sulfuric Acid
- * Toluene
- * Xylenes

Additional Hazards

- * Biological
- * Drowning
- * Noise
- * Unguarded Equipment
- * Cranes
- * Welding and Cutting
- * Dispersants
- * Degreasers
- * Underwater Diving

Safety During Training

- * Cold Water = Hypothermia
- * Gloves
- * No jewelry – rings, watches, necklaces
- * Proper Foot Wear
- * Life Vests
- * Watch Ropes/Lines
- * Communications

Drum Safety

- * Unknowns
- * 600+ lbs.
- * Over pressurization
- * Cuts/abrasions
- * Tools
- * Leaks
- * Overpack



Booming Safety Issues

- * Shoreline Safety

- * Rope Safety

- * Boat Safety

- * Boom Safety

- * Submergence

- * Flow

- * Weather



Tanker Truck/Rail Car

- * Large quantities of low-toxicity chemicals makes for an extremely hazardous situation.
- * Movement/shifting
- * Fuels, hydraulics, pressurized liquids, greases
- * Metal debris



Other Issues

- * What are the safety issues here?



Safety Issues?



Safety Issues?



Safety Issues?



Guidance for Oil Spill Responder Training

Training Marine Oil Spill Response Workers Under OSHA's Hazardous Waste Operations and Emergency Response Standard



U.S. Department of Labor
Occupational Safety and Health Administration

OSHA 3172
2001



What level of Training

- * Based upon highest level of Assignment Responsibility
- * Where in proximity of spill
- * What is the employee tasked to do

Two Phases of Response Action Under HAZWOPER

- * Can be both at the same time or separate
- * Emergency Response (q)
 - * Oil and Associated Airborne and Surface Contamination Hazards – real or potential
 - * On water and underwater operations
 - * Oil still in containment boom
- * Post-Emergency Response (q)(11)
 - * Stranded on the beach
 - * Shore line clean up* Re-released
 - * Oil is stabilized

When does HAZWOPER not apply

- * Spill does not present H & S hazard to employees
- * Can be absorbed or cleaned-up by employees in the vicinity
- * Does not have the potential to become an emergency

Volunteers

- * Not covered by Federal OSHA 29 CFR 1910.120
- * Usually Covered by STATE OSHA
- * Covered by EPA 40-CFR 311 Compensated and non-compensated workers

Emergency Response Action (Table #1)

		What action will the worker be assigned in the emergency response?			
Incident Commander On-Scene Coordinators Supervisors	Active Response: Taking action at the source Stopping the release	Defensive Response: Containing at a distance people, property, and environment at a safe distance	Initiate Response Only: Notifying Authorities	Skilled Support: Usually not a response team employee Immediate, short-term, intervention only.	Specialist Employee: Providing technical assistance to individual in charge
Incident Commander 1910.120(q)(6)(v) <hr/> 24 hours + Demonstrated Competencies + Annual Refresher Table 2: Incident Commander	Hazardous Materials Technician or Specialist 1910.120(q)(6)(iii) or (v) <hr/> 24 hours + Demonstrated Competencies + Annual Refresher Table 2: Active Response	First-Responder Operations Level 1910.120(q)(6)(ii) <hr/> 8 hours + Demonstrated Competencies + Annual Refresher Table 2: Defensive Response	First-Responder Awareness Level 1910.120(q)(6)(i) <hr/> Hours Sufficient to Demonstrated Competencies + Annual Refresher Table 2: Initiate Response	Skilled Support Personnel 1910.120(q)(4) <hr/> Spill Site Briefing Only Table 2: Skilled Support	Specialist Employee 1910.120(q)(5) <hr/> Demonstrate Competencies in Specialization Annually Table 2: Specialist Employee
		Will the worker participate in post-emergency response cleanup?		No -->	No further training required

Yes

Emergency Response Action (Table #1)

What action will the worker be assigned in the emergency response?

Initiate Response Only: Notifying Authorities

First-Responder
Awareness Level
1910.120(q)(6)(i)

Hours Sufficient to
Demonstrated
Competencies
+
Annual Refresher

Table 2:
Initiate Response

Will the worker participate in post-emergency response cleanup?
NO

No further
training
required

Post-Emergency Action (Table #2)

Post-Emergency Action (Table #2)			Will the worker be exposed to oil or other hazardous substances?	No -->	Spill site briefing. Training under other OSHA standards may be required (see Appendix A)
			Yes		
			Is the worker's experience and/or training equivalent to the appropriate training below?*	Yes -->	No further training required; employer must document equivalency per 1910.120 (e)(9) Site-specific training is required
			No		
			Will the worker face ANY of the following: Exposures above Permissible/ Published Limits? Respirators Needed? Potential for Emergency to Develop?		

Post-Emergency Action (Table #2)

Will the worker be exposed to oil or other hazardous substances?



NO



Spill site briefing. Training under other OSHA standards may be required (see Appendix A)

Will the worker face ANY of the following: Exposures above Permissible/ Published Limits? Respirators Needed? Potential for Emergency to

Develop?



NO



Manager?

ON-SCENE COORDINATOR

- 1) Know and be able to implement the employer's incident command system.
- 2) Know how to implement the employer's emergency response plan.
- 3) Know and understand the hazards and risks associated with employees working in personal protective clothing.
- 4) Know how to implement the local emergency response plan.
- 5) Know the state emergency response plan and the Federal Regional Response Team.
- 6) Know and understand the importance of decontamination procedures.

ACTIVE RESPONSE

- 7) Know how to implement the employer's emergency response plan.
- 8) Know how to use field survey instruments and equipment to classify, identify, and verify known and unknown materials.
- 9) Be able to function within an assigned role in the Incident Command System.
- 10) Know how to select and use proper specialized personal protective equipment provided to the hazardous materials technician.
- 11) Understand and be able to apply hazard and risk assessment techniques.
- 12) Be able to perform advanced control, containment, and/or confinement operations within the capabilities of the resources and available personal protective equipment.
- 13) Understand and implement decontamination procedures.
- 14) Understand termination procedures.
- 15) Understand terminology and behavior of chemicals and their toxic effects.

Active Response (cont'd)

- 16) Know how to use advanced survey instruments and equipment to classify, identify, and verify known and unknown materials.
- 17) Understand in-depth hazard and risk techniques.
- 18) Be able to determine and implement decontamination procedures.
- 19) Know how to implement the local emergency response plan.
- 20) Know the state emergency response plan.
- 21) Be able to develop a site safety and control plan.
- 22) Understand chemical, radiological, and toxicological terminology and behavior.
- 23) Be able to select and use proper specialized chemical personal protective equipment provided to the hazardous materials specialist.
- 24) Be able to perform specialized control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available.

We Don't Need a Safety Officer!!



Questions

Thank you

National Incident Management System

Incident
Command
System

Orientation
Training

National Incident Management System (NIMS)

- Provides a consistent, nationwide, systematic approach to incident management that is applicable to all levels of government, nongovernmental organizations, and the private sector, and across functional disciplines in an all-hazards context.
- Five major components make up this systems approach: preparedness, communications and information management, resource management, command and management, and ongoing management and maintenance.

Overview of NIMS Components

- I. Preparedness – assessment; planning; procedures and protocols; training and exercises; and personnel qualifications, licensure, certification
- II. Communications and Information Management – interoperability; reliability; scalability; and portability
- III. Resource Management – identity requirements; order and acquire; track and report; recover and demobilize; reimburse, and inventory
- IV. Command and Management
- V. Ongoing Management and Maintenance – routine maintenance and continuous refinement; strategic research and development

IV. Command and Management: Incident Command System (ICS)

- ICS provides a flexible core mechanism for coordinated and collaborative incident management.
- ICS is used to organize operations for a broad spectrum of emergencies from small to complex incidents, both natural and manmade.
- ICS is used by all levels of government – federal, state, tribal, and local – as well as by many NGOs and the private sector.

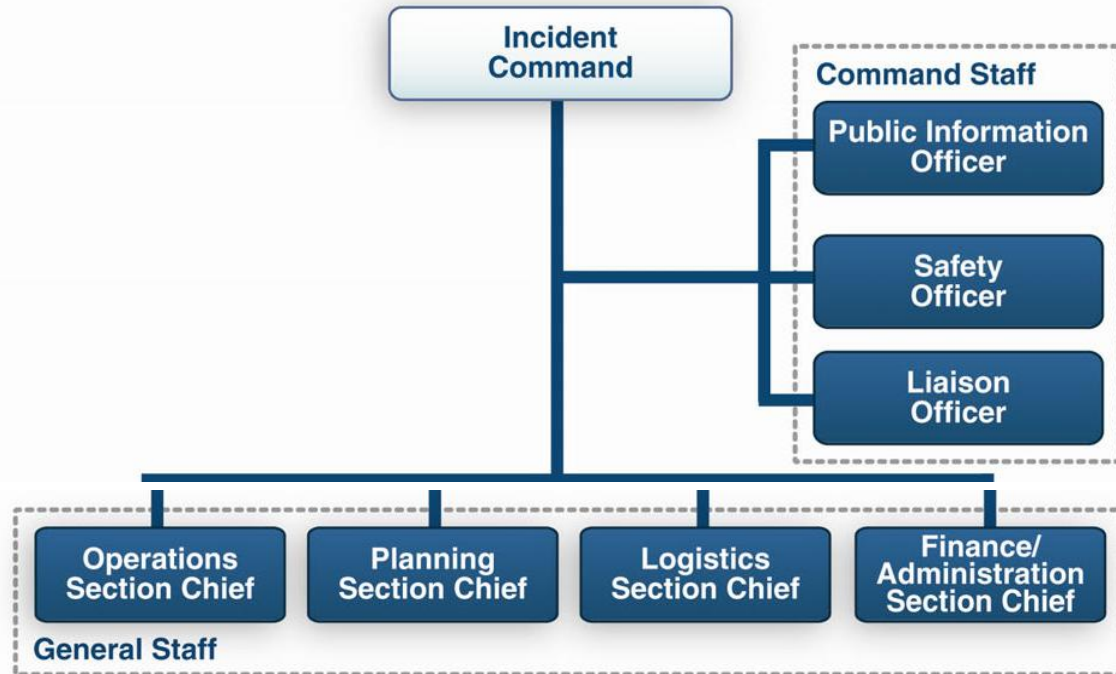
ICS is Based on Several Management Concepts

- Common Terminology
- Modular Organization
- Management by Objectives
- Incident Action Planning
- Manageable Span of Control
- Incident Facilities and Locations
- Comprehensive Resource Management
- Information and Intelligence Management

ICS is Based on Several Management Concepts (cont)

- Establishment and Transfer of Command
- Chain of Command and Unity of Command
- Unified Command
- Accountability
- Dispatch/Deployment
- Integrated Communications

Incident Command System – Five Major Functional Areas



Incident Command

- Responsible for overall management of the incident.
- Single Incident Commander: Incident occurs within a single jurisdiction and there is no functional agency overlap.
- Unified Command: Multijurisdictional or multiagency incident management.
 - Federal/State/Tribal OSCs, Responsible Party, local jurisdiction participation

Command Staff

- Public Information Officer: Interfaces with public and media and/or with other agencies.
- Safety Officer: Monitors incident operations and advises the IC/UC on all matters relating to operational safety.
- Liaison Officer: Point of contact for representatives of other agencies for incident-related matters.
- Additional positions may include Agency Representative, Critical Incident Stress Management Specialists, Scientific Support Coordinator

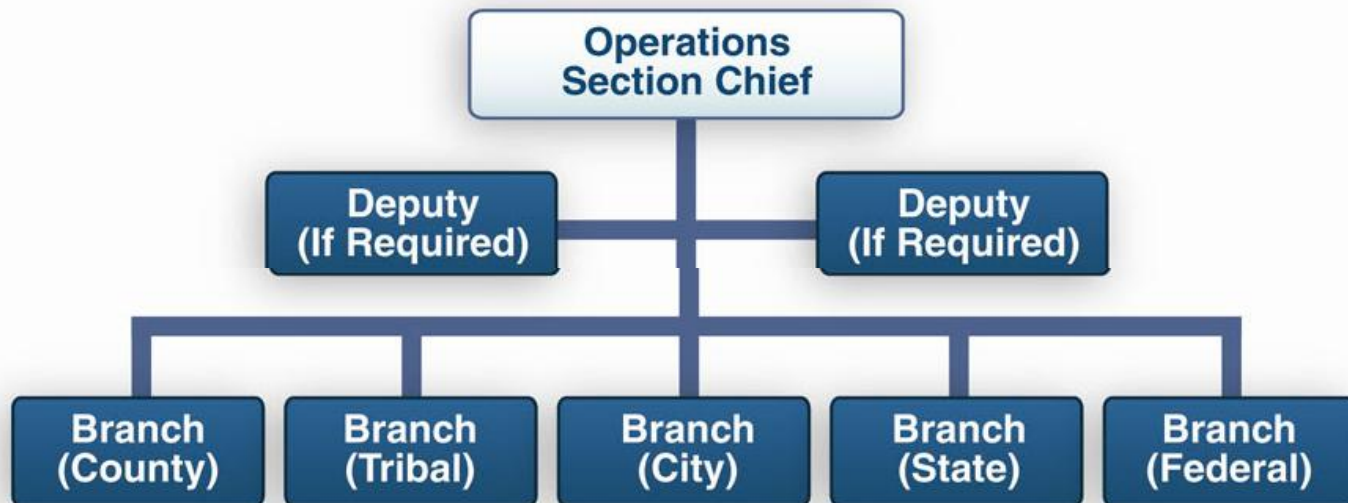
General Staff – Operations Section



Operations Section

- This section is responsible for management of all incident-related tactical activities.

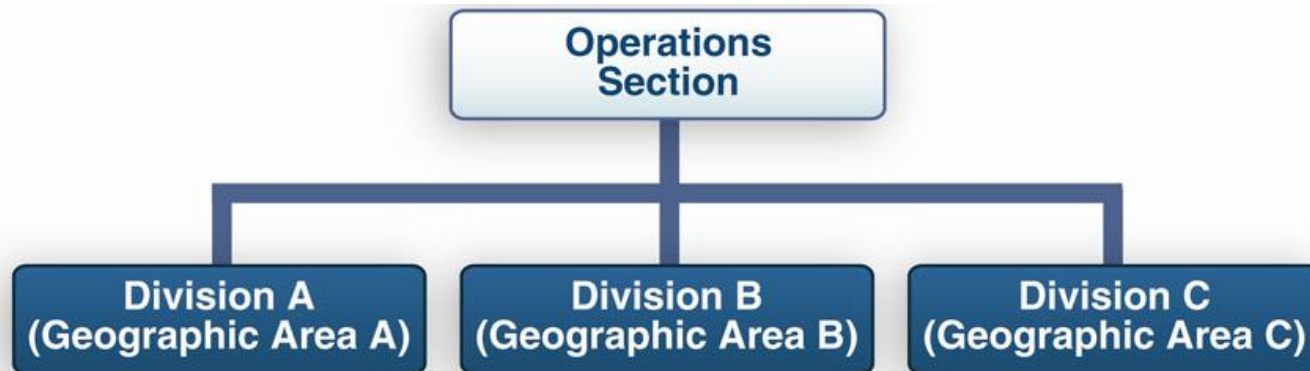
Multijurisdictional Organization



Geographic Branch Organization



Use of Geographic Divisions



Use of Functional Groups



General Staff – Planning Section



Planning Section

- This section is responsible for collecting, evaluating, and disseminating operational information pertaining to the incident.

Environmental Unit

- This unit is responsible for environmental matters associated with the incident.

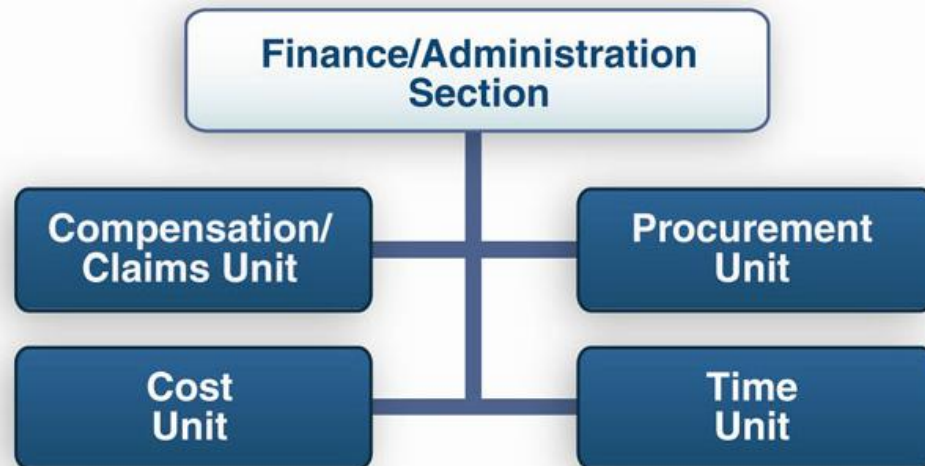
General Staff – Logistics Section



Logistics Section

- This section is responsible for providing facilities, services, and material support for the incident.

General Staff – Finance/Administration Section



Finance/Administration Section

- This section is established when the incident management activities require on-scene or incident-specific finance and other administrative support services.

Intelligence/Investigations Function

- Ensures that all investigative and intelligence operations, functions, and activities within the incident response are properly managed, coordinated, and directed.

Potential Tribal Activities

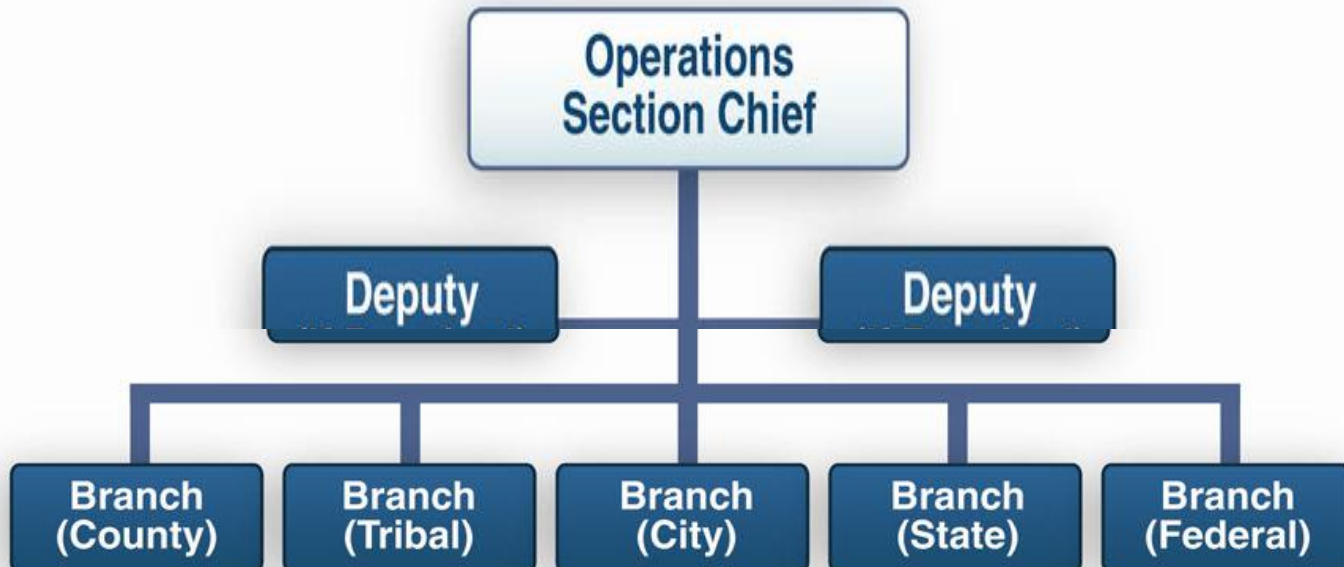
- Incident Command - Unified Command
- Contribute to:
 - Setting priorities and determining overall incident objectives and strategies
 - Establishing ICS organization needed to manage the incident
 - Approving Incident Action Plan

Potential Tribal Activities (cont)

- Command Staff – Public Information Officer
 - Develop accurate, accessible, and timely information
 - Arrange for tours and other interviews or briefings that may be required
- Command Staff – Liaison Officer
 - Act as a point of contact for Agency representatives
- Command Staff – Agency Representative
 - Assist in coordination efforts

Potential Tribal Activities (cont)

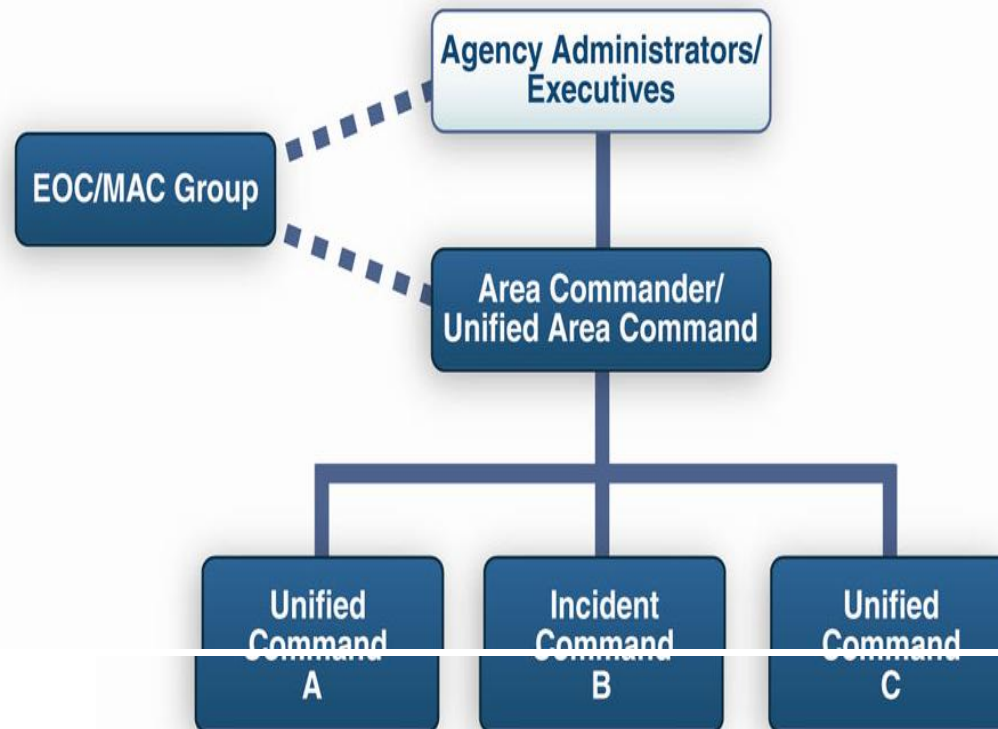
- Deputy Operations Section Chief
- Branch Director & Division/Group Supervisor



Potential Tribal Activities (cont)

- Planning Section - Technical Specialist
 - Agricultural specialist, cultural/historic resource specialist, fish and wildlife specialist, and public relations specialist.
- Planning Section – Environmental Unit
 - Analytical Coordinator, Ecological Assessment Coordinator
- Planning Section – Situation Unit
 - Field Observers

Area Command – Oversee Multiple Incidents



Facilities and Locations

- Several kinds and types of facilities may be established in and around the incident area.
 - Incident Command Post. The location on tactical-level, on-scene incident command organization.
 - Incident Base. Location at which primary support activities are conducted.
 - Camps. Satellites to incident base.
 - Staging Areas. Temporary location of available resources.


The slide features a solid blue background. A large white rounded rectangle is positioned on the left side, containing the word "Question?". Below this rectangle, a horizontal yellow bar with rounded ends spans across the lower portion of the slide, partially overlapping the blue background and the text "NIMS and/or ICS".

Question?

NIMS and/or ICS

The Planning Process

And the Incident Action
Plan (IAP)

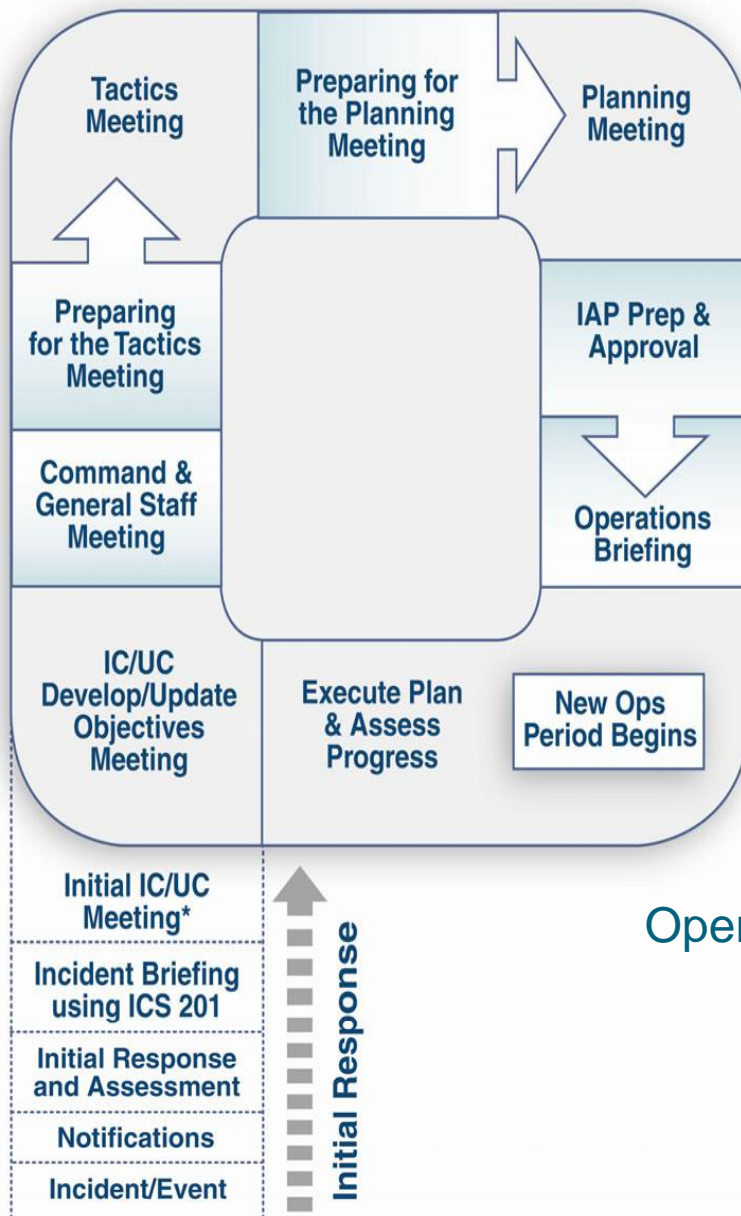


Five Primary Phases in the Planning Process

- Understand the Situation
 - Gathering, recording, analyzing, and displaying situation, resource, and incident-potential information
- Establish Incident Objectives and Strategy
 - Formulating and prioritizing measurable incident objectives and identifying an appropriate strategy
- Develop the IAP
 - Determining the tactical direction and the specific resources, reserves, and support requirements for implementing the selected strategies and tactics for the operational period

Five Primary Phases in the Planning Process (cont)

- Prepare and Disseminate the Plan
 - Preparing the plan in a format that is appropriate for the level of complexity of the incident.
- Execute, Evaluate, and Revise the Plan
 - Execute and evaluate planned activities; check the accuracy of information to be used in planning for the subsequent operational periods.



Operational Period Planning Cycle

*During this timeframe a meeting with the Agency Administrator/Executive can occur.

The IAP and Typical Attachments

- Incident Objectives (ICS 202)
- Organization Assignment List or Chart (ICS 203)
- Assignment List (ICS 204)
- Incident Radio Communications Plan (ICS 205)
- Medical Plan (ICS 206)
- Incident Maps
- Safety Message Plan (ICS 208)

Other Potential IAP Components

- Air Operations Summary (ICS 220)
- Decontamination Plan
- Evacuation Plan
- Site Security Plan
- Traffic Plan
- Waste management and Disposal Plan

ICS Forms That Can Aid the Planning Process

- ICS 201. Incident Briefing
- ICS 202. Incident Objectives
- ICS 203. Organization Assignment List
- ICS 205. Incident Radio Communications Plan
- ICS 206. Medical Plan
- ICS 209. Incident Status Summary
- ICS 211. Incident Check-In List
- ICS 213. General Message
- ICS 215. Operational Planning Worksheet
- ICS 215A. Hazard Risk Analysis

The slide features a solid blue background. On the left side, there is a large white rounded rectangle. The word "Questions?" is centered within this white area. To the right of the white rectangle, the text "Planning Process & IAP" is displayed in a dark blue font. Below this text, a horizontal yellow bar with rounded ends spans across the width of the slide.

Questions?

Planning Process & IAP

IDENTIFICATION of HAZARDOUS MATERIALS



What do we need to know?

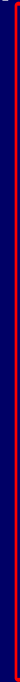
- Understand the Clues to HazMat
- Know the three major Identification Systems
- Know when these systems used
- Understand how to use each systems to identify hazardous materials

Identification Clues

(in order low risk to high)

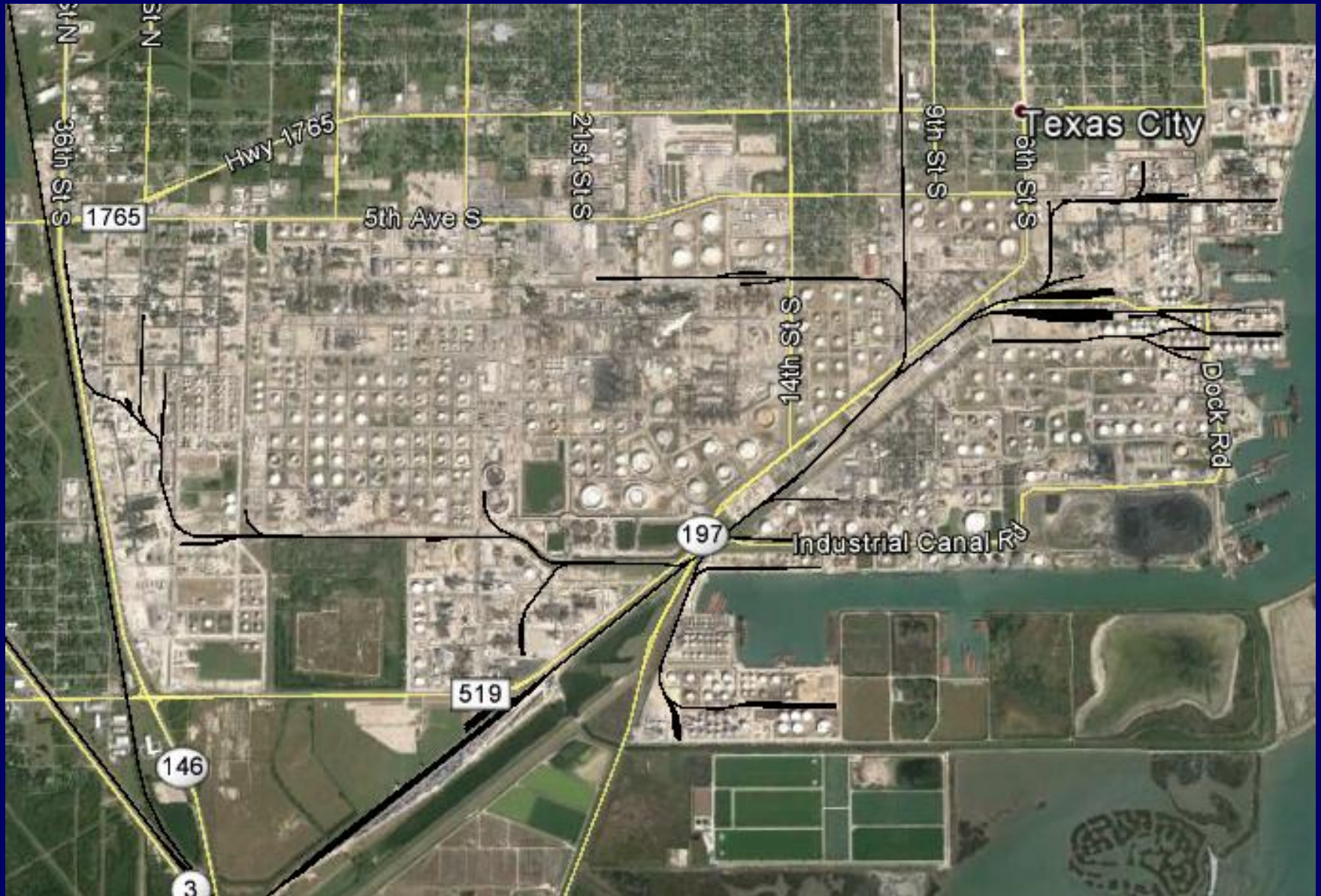
- Location
- Occupancy
- Container Size and Shape
- Placards and Markings
- Labels
- Direct Reading Instruments
- Senses

Low risk



High risk

Location



Location



Location



Location



Occupancy



Occupancy



Occupancy



Container



Container



Container



Containers



The Three Hazard ID Systems

- DOT/IATA Placarding/Labeling
- NFPA 704 System
- OSHA Hazardous Communications (1910.1200)
 - Hazardous Material Identification System
 - Global Harmonization System
 - Material Safety Data Sheets (MSDS) (Old)
 - Safety Data Sheets (SDS) (New)

Shipping of Hazardous Materials and Dangerous Goods

- Department of Transportation (US DOT)
 - Modes of shipping within USA
 - Highways
 - Air
 - Water (vessels)
 - Pipelines
 - Emergency Response Guidebook
 - 1993 Alignment with UN guidance
- International Air Transport Association (IATA)
 - Shipments by air – domestic and international

Hazardous Materials Warning Placards

Actual placard size: at least 250 mm (9.84 inches) on all sides

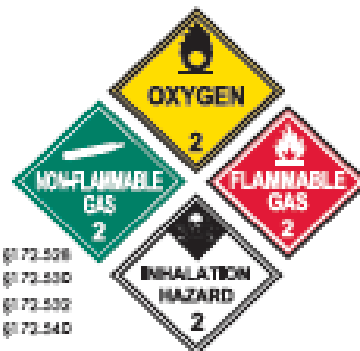
CLASS 1 Explosives



§172.522
§172.523
§172.524
§172.525

* For Divisions 1.1, 1.2, or 1.3, enter division number and compatibility group letter, when respectively placed any quantity. For Divisions 1.4, 1.5, and 1.6, enter compatibility group letter when respectively placed 454 kg (1,000 lbs) or more.

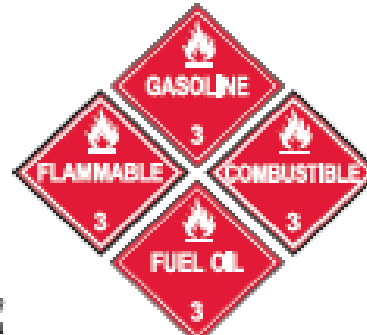
CLASS 2 Gases



§172.528
§172.530
§172.533
§172.540

For NON-FLAMMABLE GAS, OXYGEN (compressed gas or refrigerated liquid), and FLAMMABLE GAS, placed 454 kg (1,000 lbs) or more (gross weight). For POISON GAS (Division 2.3), placed any quantity.

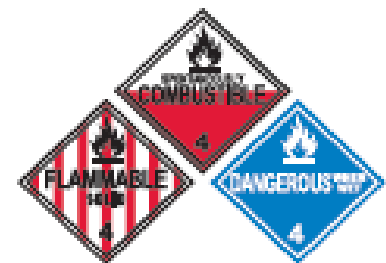
CLASS 3 Flammable Liquid and Combustible Liquid



§172.543
§172.544

For FLAMMABLE, placed 454 kg (1,000 lbs) or more. GASOLINE may be used in place of FLAMMABLE placed displayed on a single tank or portable tank transporting gasoline by highway. Placed combustible liquid transported in bulk. See §172.504(g) for use of FLAMMABLE placed in place of COMBUSTIBLE. FUEL OIL may be used in place of COMBUSTIBLE on a single or portable tank transporting fuel oil not shipped as a Flammable Liquid by highway.

CLASS 4 Flammable Solid, Spontaneously Combustible, and Dangerous When Wet



§172.546, §172.547, §172.548

For FLAMMABLE SOLID and SPONTANEOUSLY COMBUSTIBLE, placed 454 kg (1,000 lbs) or more. For DANGEROUS WHEN WET (Division 4.3), placed any quantity.

CLASS 5 Oxidizer & Organic Peroxide



Organic Peroxide, Transfers 2011 (pub. revised and altered) 2014 (highway)

§172.550, §172.552

For OXIDIZER and ORGANIC PEROXIDE (other than TYPE B, temperature controlled), placed 454 kg (1,000 lbs) or more. For ORGANIC PEROXIDE (Division 5.2), Type B, temperature controlled, placed any quantity.

CLASS 6 Poison (Toxic) and Poison Inhalation Hazard



§172.554(g)(1), §172.554, §172.555

For POISON (PG or PGI, other than Inhalation Hazard) and POISON (PGI), placed 454 kg (1,000 lbs) or more. For POISON-INHALATION HAZARD (Division 6.1), Inhalation Hazard only, placed any quantity.

CLASS 7 Radioactive



§172.556

Placed any quantity - packages bearing RADIOACTIVE YELLOW-III labels only. Certain low activity radioactive materials in "exclusive use" will not bear this label, but this radioactive placed is required for exclusive use shipments of low activity radioactive material and certain non-radioactive objects transported in accordance with §172.504(g) Table 1 and §172.427(a)(6).

CLASS 8 Corrosive



§172.558

For CORROSIVE, placed 454 kg (1,000 lbs) or more.

CLASS 9 Miscellaneous



§172.560

Not required for domestic transportation. A bulk packaging containing a Class 9 material must be marked with the appropriate ID number displayed on a Class 9 placard, on orange panel, or a white square-on-point display.

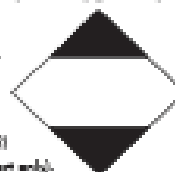
Dangerous



§172.521

A freight container, unit load device, transport vehicle, or rail car which contains multiple packages with two or more categories of hazardous materials that require different placards specified in Table 2 (§172.504(g)) may be placarded with DANGEROUS placards instead of the specific placards required for each of the materials in Table 2. However, when 1,000 kg (2,205 lbs) or more of one category of material is loaded on one loading facility, the placard specified in Table 2 must be applied.

Limited Quantity Marking



§172.315(a)(2)

(Visual transport only).

Safety begins with communication!

Hazardous Materials Warning Labels

Actual label size: at least 100 mm (3.9 inches) on all sides

CLASS 1 Explosives:
Divisions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6



§172.411

CLASS 2 Gases:
Divisions 2.1, 2.2, 2.3



§172.405(a), §172.413, §172.416, §172.417

CLASS 3 Flammable Liquid



§172.419

CLASS 4 Flammable Solid, Spontaneously Combustible, and Dangerous When Wet:
Divisions 4.1, 4.2, 4.3



§172.420, §172.422, §172.423

CLASS 5 Oxidizer, Organic Peroxide: Divisions 5.1 and 5.2



§172.426, §172.427

* Include compatibility group letter.

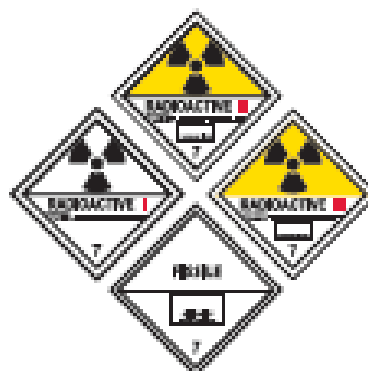
** Include division number and compatibility group letter.

CLASS 6 Poison (Toxic), Poison Inhalation Hazard, Infectious Substance: Divisions 6.1 and 6.2



§172.503, §172.405(a), §172.429, §172.430, §172.432

CLASS 7 Radioactive



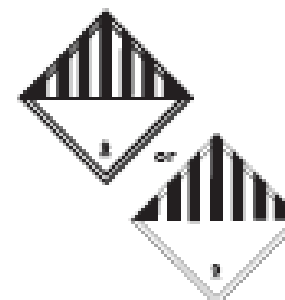
§172.404, §172.406, §172.440, §172.441

CLASS 8 Corrosive



§172.442

CLASS 9 Miscellaneous Hazardous Material



§172.444

Cargo Aircraft Only



§172.448

Empty Label



§172.450

For Regulated Medical Waste (RMW), an Infectious Substance label is not required on an outer packaging if the OSHA Biohazard marking is used as prescribed in 29 CFR 1910.1030(g). A leaky package of RMW must display a BIOHAZARD marking.

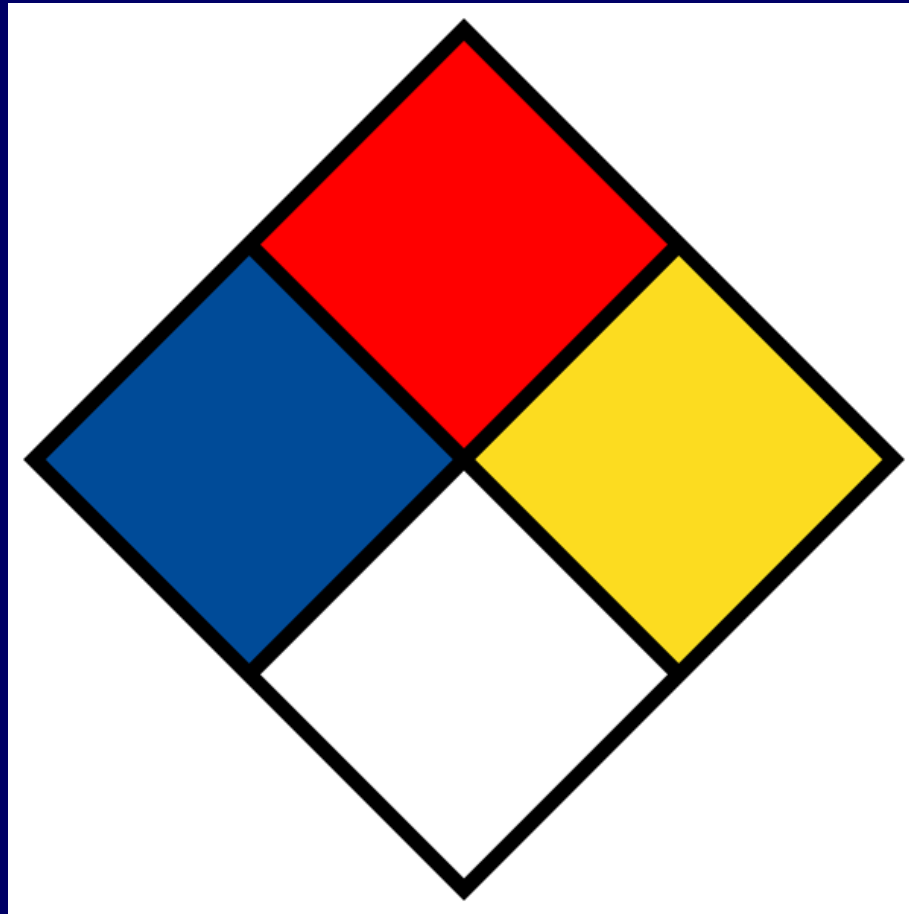
Limitation

- Airliners do not have placards on them
- DOT Table #2 -1001 lbs. for many chemicals before placards are needed.
- DOT Dangerous Placard
- Consumer Packaging



NFPA 704 System

Flammability



Health

Reactivity




Special Hazard

NFPA 704 System



NFPA Rating Explanation Guide



RATING NUMBER	HEALTH HAZARD	FLAMMABILITY HAZARD	INSTABILITY HAZARD	RATING SYMBOL	SPECIAL HAZARD
4	Can be lethal	Will vaporize and readily burn at normal temperatures	May explode at normal temperatures and pressures	ALK	Alkaline
3	Can cause serious or permanent injury	Can be ignited under almost all ambient temperatures	May explode at high temperature or shock	ACID	Acidic
2	Can cause temporary incapacitation or residual injury	Must be heated or high ambient temperature to burn	Violent chemical change at high temperatures or pressures	COR	Corrosive
1	Can cause significant irritation	Must be preheated before ignition can occur	Normally stable. High temperatures make unstable	OX	Oxidizing
0	No hazard	Will not burn	Stable		Radioactive
					Reacts violently or explosively with water
					Reacts violently or explosively with water and oxidizing

This chart for reference only - For complete specifications consult the NFPA 704 Standard

NFPA 704 System

- Developed for the Fire Service
- Not Chemical Specific
- Mostly for Fixed Facility
- Not always related to specific location
- Does not give quantities
- Limited information

OSHA HAZCOM/GHS

- Employer responsibility
- Communicate to the employees
- Chemical used by employees
- Training for level of responsibility
- Variety of Communication Systems

HMIS (American Coating Association)

Chemical Name	
CAS#	
HEALTH	<input type="checkbox"/>
FLAMMABILITY	<input type="checkbox"/>
REACTIVITY	<input type="checkbox"/>
PPE	<input type="checkbox"/>
OKLAHOMA STATE HAZARD COMMUNICATION	

Numbers 0-4
just like
NFPA 704
System

HMIS (American Coating Association)

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM

HMIS

HAZARD INDEX

4 = SEVERE HAZARD
3 = SERIOUS HAZARD
2 = MODERATE HAZARD
1 = SLIGHT HAZARD
0 = MINIMAL HAZARD

An asterisk(*) or other designation corresponds to additional information on a data sheet or separate chronic effects notification

Additional Information

PERSONAL PROTECTION EQUIPMENT

A Safety Glasses	n Splash Goggles	o Face Shield & Eye Protection	p Gloves
q Boots	r Synthetic Apron	s Full Suit	t Dust Respirator
u Vapor Respirator	w Dust & Vapor Respirator	y Full Face Respirator	z Airline Hood or Mask

PERSONAL PROTECTION INDEX

A	
B	+
C	+ +
D	+ +
E	+ +
F	+ + +
G	+ +
H	+ + +
I	+ +
J	+ + +
K	+ + +
X	Consult your supervisor or S.O.P. for "SPECIAL" handling directions

Global Harmonization System










- Unify Hazard Communication Systems
- More for manufactures of chemicals
- Totally new system
- Better for the global market
- Less language and more pictograms
- Address wider range of physical hazards

Major Changes - Labels

- Chemical manufacturers and importers must provide a label that includes a signal word, pictogram, hazard statement, and precautionary statement for each hazard class and category



GHS Pictograms

<p>Exploding bomb</p>  <p>Explosives; Self Reactive; Organic Peroxides</p>	<p>Skull and Crossbones</p>  <p>Acute toxicity (severe)</p>	<p>Flame</p>  <p>Flammables; Pyrophorics; Self-Heating; Emits Flammable Gas; Self Reactive; • Organic Peroxides</p>
<p>Gas Cylinder</p>  <p>Gases under pressure</p>	<p>Health Hazard</p>  <p>Carcinogen; Mutagenicity; Reproductive Toxicity; Respiratory Sensitizer; Target Organ Toxicity; Aspiration Toxicity</p>	<p>Flame over circle</p>  <p>Oxidizers</p>
<p>Corrosion</p>  <p>Corrosives</p>	<p>Exclamation mark</p>  <p>Irritant; Skin Sensitizer; Acute Toxicity (harmful); Narcotic effects; Respiratory Tract Irritant; Hazardous to Ozone Layer</p>	<p>Environmental</p>  <p>Aquatic Toxicity (OSHA did not propose this pictogram)</p>

MSDS/SDS



Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet Benzene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Benzene	Contact Information:
Catalog Codes: SLB1564, SLB3055, SLB2881	ScienceLab.com, Inc. 14025 Smith Rd. Houston, Texas 77396
CAS#: 71-43-2	US Sales: 1-800-801-7247 International Sales: 1-281-441-4400
RTECS: CY1400000	Order Online: ScienceLab.com
TSCA: TSCA 8(b) Inventory: Benzene	CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300
CI#: Not available.	International CHEMTREC, call: 1-703-527-3887
Synonym: Benzol; Benzine	For non-emergency assistance, call: 1-281-441-4400
Chemical Name: Benzene	
Chemical Formula: C ₆ H ₆	

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Benzene	71-43-2	100

Toxicological Data on Ingredients: Benzene: ORAL (LD50): Acute: 930 mg/kg [Rat], 4700 mg/kg [Mouse]. DERMAL (LD50): Acute: 8gt.9400 mg/kg [Rabbit]. VAPOR (LC50): Acute: 10000 ppm 7 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of eye contact (Irritant), or inhalation. Hazardous in case of skin contact (Irritant, permeator), or ingestion. Inflammation of the eye is characterized by redness, watering, and itching.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH, 1 (Proven for human.) by IARC. **MUTAGENIC EFFECTS:** Classified POSSIBLE for human. Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. **TERATOGENIC EFFECTS:** Not available. **DEVELOPMENTAL TOXICITY:** Classified Reproductive system/toxin/female (POSSIBLE). The substance is toxic to blood, bone marrow, central nervous system (CNS). The substance may be toxic to liver, Urinary System. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention immediately.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-ignition Temperature: 497.78°C (928°F)

Flash Points: CLOSED CUP: -11.1°C (12°F). (Setflash)

Flammable Limits: LOWER: 1.2% UPPER: 7.8%

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances:

Highly flammable in presence of open flames and sparks, or heat. Slightly flammable to flammable in presence of oxidizing materials. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Explosive in presence of oxidizing materials, or acids.

Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water. **SMALL FIRE:** Use DRY chemical powder. **LARGE FIRE:** Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards:

Extremely flammable liquid and vapor. Vapor may cause flash fire. Reacts on contact with iodine heptafluoride gas. Dioxigenyl tetrafluoroborate is as very powerful oxidant. The addition of a small particle to small samples of benzene, at ambient temperature, causes ignition. Contact with sodium peroxide with benzene causes ignition. Benzene ignites in contact with powdered chromic anhydride. Vigorous or incandescent reaction with hydrogen + Raney nickel (above 210 °C) and bromine trifluoride.

Special Remarks on Explosion Hazards:

Benzene vapors + chlorine and light causes explosion. Reacts explosively with bromine pentafluoride, chlorine, chlorine trifluoride, diborane, nitric acid, nitryl perchlorate, liquid oxygen, ozone, silver perchlorate. Benzene + pentafluoride and methoxide (from arsenic pentafluoride and potassium methoxide) in trichlorotrifluoroethane causes explosion. Interaction

SDS(MSDS) Format: 16 headings

1. Identification
2. Hazard(s) identification
3. Composition/information on ingredients
4. First-aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure control/personal protection

Format: 16 headings (cont.)

9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other information

Emergency Planning and Community Right-to-Know Act (EPCRA)

- Created under SARA (Superfund Amendments and Reauthorization Act)
- Known as SARA Title III
- Establishment of SERC/TERC (State/Tribe Emergency Response Commissions)
- Appoint LEPC (Local emergency Planning Commissions)
- Chemical Inventories at facilities (RQ)
 - **Tier I & II Reporting of inventories**
- Emergency Planning and Training

DIRECT-READING INSTRUMENTS

- Required to monitor at all times
- Provides real time information
- O₂, LEL, toxic, radiation
- Decided in Section 14



SENSES

- Use of senses is very risky in the identification of hazardous materials
- Desensitization of olfactory system could cause exposure to deadly concentrations
- Only safe sense is sight from a distance, with binoculars



SENSES



- Look for any biological indicators (dead animals or vegetation)
- Look for unusual colored smoke emitted from the scene
- Noises from containers are not normal (containers venting)
- Bulging containers, or those with deep gouges and dents, will rupture

CONCLUSION

- The clues to identify presence of hazardous materials
- Use safest method available to ensure worker safety
- Each incident is different! Though material may be the same, don't be complacent
- Safest approach: UPwind, UPhill, Upstream
- Educated decisions can be made to safely mitigate a situation
- Rely on a variety of clues to collect information



Learning Check

- Name one of the Clues to Identifying HazMat?
- DOT has how many hazard Classes?
- The NFPA 704 System provides the amount of material that is present?
- The NFPA 704 System provides guidance as to the correct PPE to wear.

Learning Check

- Name the levels of PPE protection.
- In both the HMIS and 704 Systems, a 3 indicates that the hazard in that category is more than a 2
- Ammonia vaporize faster than Benzene.
- Liquid Benzene will float or sink in water?

Any Questions?





Personal Protective Clothing and Respiratory Protection

Eric Lindeman – START IV

Ecology and Environment, Inc

PERSONAL PROTECTIVE EQUIPMENT



Objectives

- Levels of protection per OSHA
- Other types of safety gear that awareness level training personnel might wear.
- The hierarchy of controlling chemical exposure.

Methods of Exposure Control

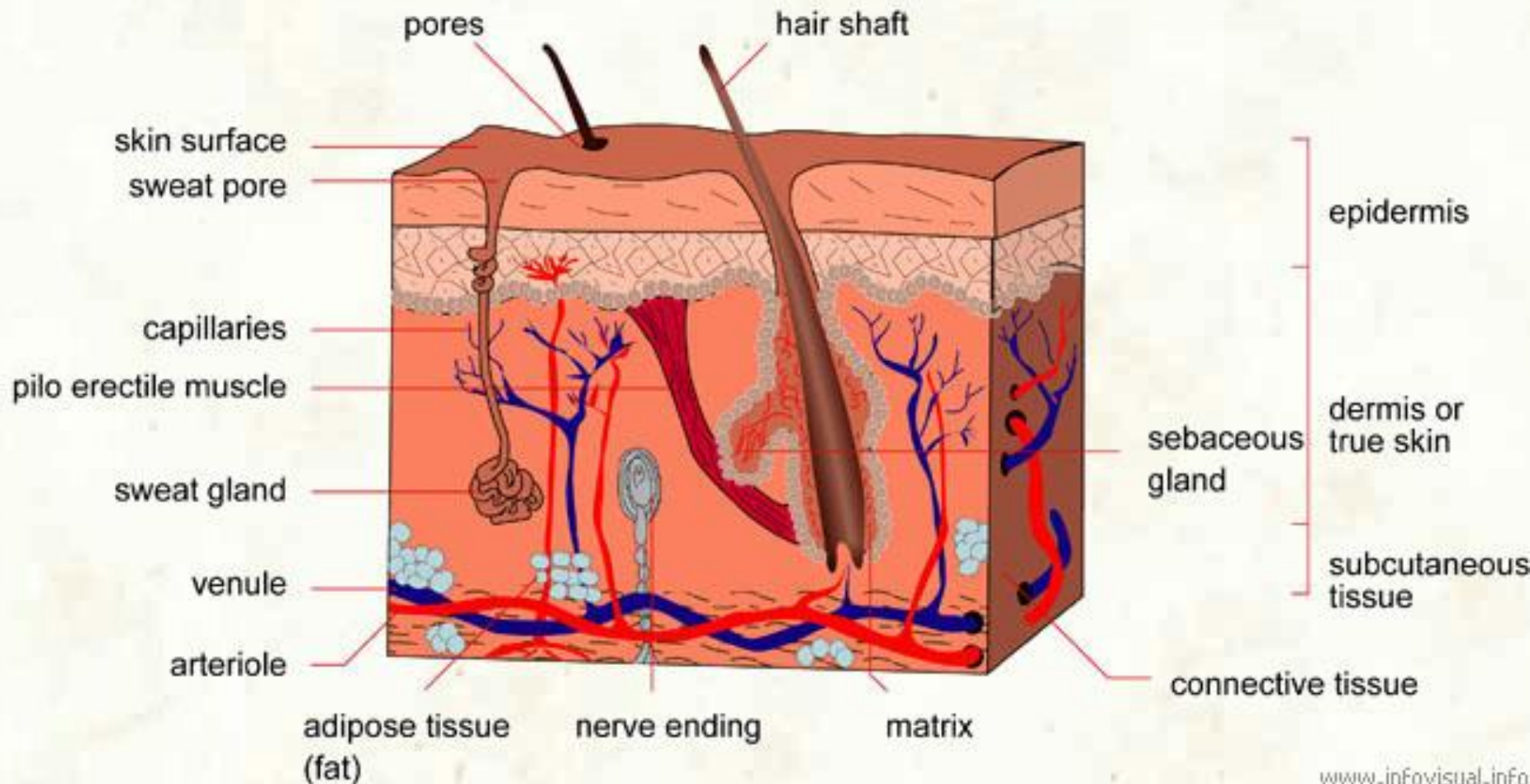
- Engineering controls
 - Ventilation, engineer process
- Administrative control
 - Worker rotation, substitution
- Personal protective equipment
 - Suits, respirator, eye protection, hard hats, steel-toed shoes, etc.

Skin Facts

- Largest organ of the body
 - Weight – 6 lb. for men, 5 lb. for women
- Area – 25 square feet ($<2 \text{ m}^2$)
- Principle functions
- Skin absorption is the major route of occupational exposure (one in three cases)

Skin Layers

CROSS SECTION OF SKIN



29 CFR 1910.132

OSHA regulations on PPE and clothing



- Training
 - When, where, don, doff, adjust, limitations, care, maintenance, useful life, disposal.
- Prior to use, employees demonstrate
 - Understanding of training, ability to use PPE
- Employees must be retained if:
 - PPE changes, obsolete, others.

Four Levels of Personal Protection



Level A



Level B



Level C



Level D

Level of Protection

LEVEL OF PROTECTION	RESPIRATORY PROTECTION	CHEMICAL PROTECTIVE
A	SCBA (PP)	Encapsulating Suit (Vapor Protective)
B+	SCBA (PP)	Encapsulating
B	SCBA (PP)	None Specified
C	APR	None Specified
D	none	Work Clothes

Non-Encapsulating Suits



- One-piece coverall
 - Protects against contact with dry materials, minor splashes and dust
 - Commonly available types are Tyvek® and Saranex®

Level D

- 1. Coveralls.
- 2. Gloves.(1)
- 3. Boots/shoes, chemical-resistant steel toe and shank.
- 4. Boots, outer, chemical-resistant (disposable).(1)
- 5. Safety glasses or chemical splash goggles.(1)
- 6. Hard hat.(1)
- 7. Escape mask.(1)
- 8. Face shield.(1)

Chemical Protective Clothing

- Selection factors
 - Penetration – flow of chemicals through seams, zippers, etc.
 - Degradation – reduction of physical properties.
 - Permeation – diffusion through intact material.
 - Flammability – flash protection

CHEMICAL PROTECTION

- Ensemble is suits, boots, gloves, APR/SAR, zipper, face shield
- "Component" refers to any piece of an ensemble
- Fabric is a cloth-like material
- **No one fabric or ensemble resists all chemicals**



Limitations of Tyvek & Saranex

- Tyvek does not protect against gases and vapors
- Do not protect against pervasive splashing hazard situations
- May contribute to heat stress in wearer
- Must tape-seal suit connection at gloves and boots
- Not flame resistant

Other Safety Equipment

- Head Protection (Hard Hat)
 - Comply with ANSI standards
- Eye Protection
 - Spectacles, side shields, goggles, face shield
 - Comply with ANSI standards
- Hearing Protection
 - OSHA established PELs

Options to Reduce Exposure

- Reduce number of workers needed in the hot zone
- Use tools or technology to reduce the amount of time spent in the hot zone
- Prepare and plan prior to entry in order to reduce time spent in the hot zone
- Re-design tasks to eliminate the need to be in close proximity to areas of contamination



SELECTION OF CPC

- Unknown leads to level "A"
- Minimum is level "B"
- Work functions may suggest what level
- Six clues can help in recognizing hazards
- Instruments may indicate criteria for changing levels of protection and materials
- Permeation is the primary criteria; quick selection guide to CPC

PHYSICAL STRESS WEARING CPC



- Heat and cold stress
- Accident frequency
- Fatigue

PHYSICAL STRESS WEARING CPC

- Minimize adverse effects:
 - Medical surveillance program
 - Varying work and rest periods
 - Intake of fluids / electrolytes
 - Dehydration



Respiratory Protection



Objectives

- Be able to list and identify the different types of respiratory protection.

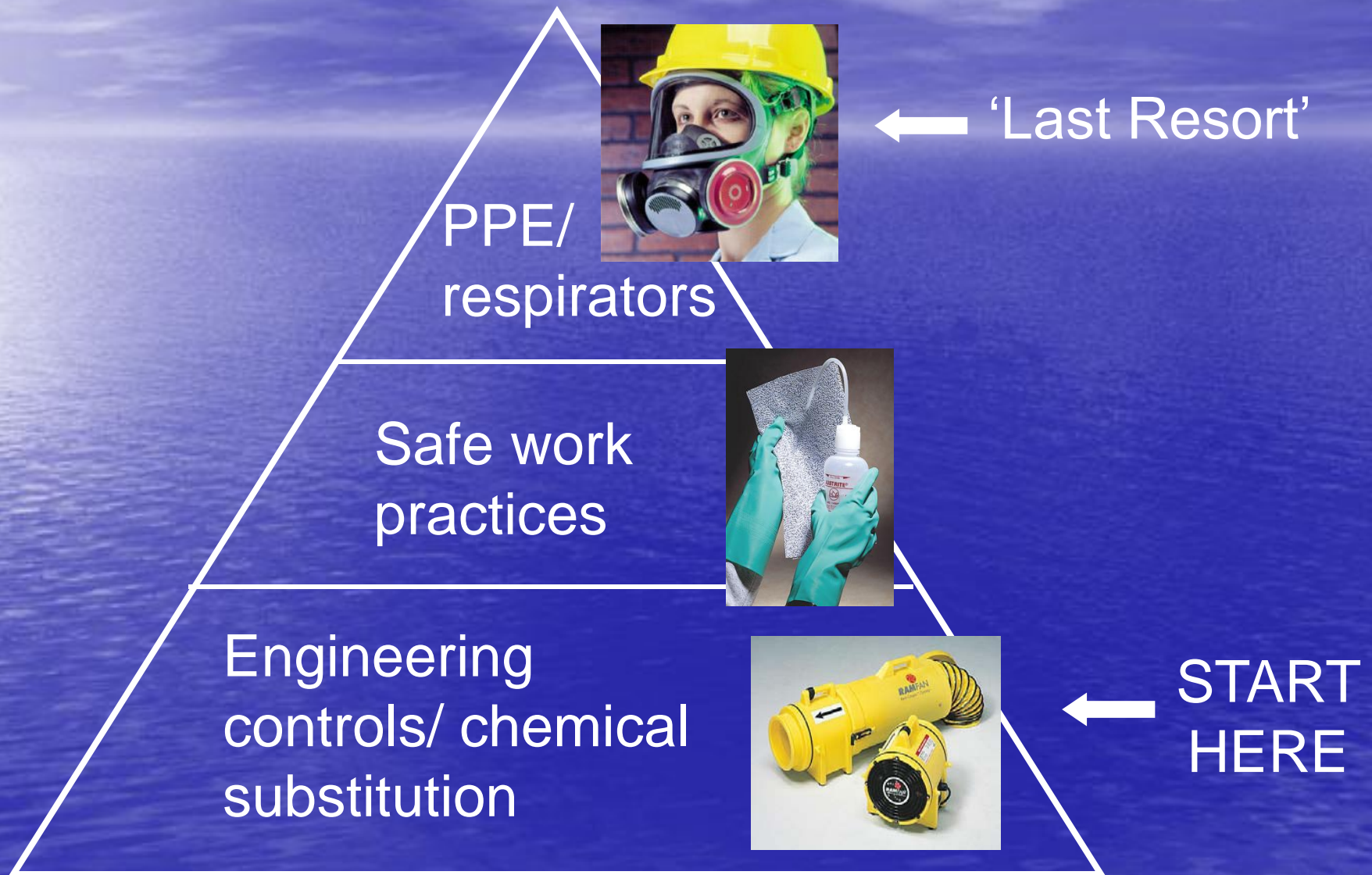
Respiratory Protection

Respirators are the **least preferred method** of worker protection from airborne contaminants

Respiratory Protection

- Respirators are recommended when:
 - Engineering controls are not technically feasible
 - Engineering controls are being installed or repaired
 - Emergency and other temporary situations arise

Hazard Management: The Hierarchy of Control



Respiratory Protection Program**

Minimum

requirements:

- Exposure assessment
- Program administration
- Written program
- Medical evaluation
- Selection of proper respiratory protection
- Training
- Fit testing
- Cleaning and maintenance

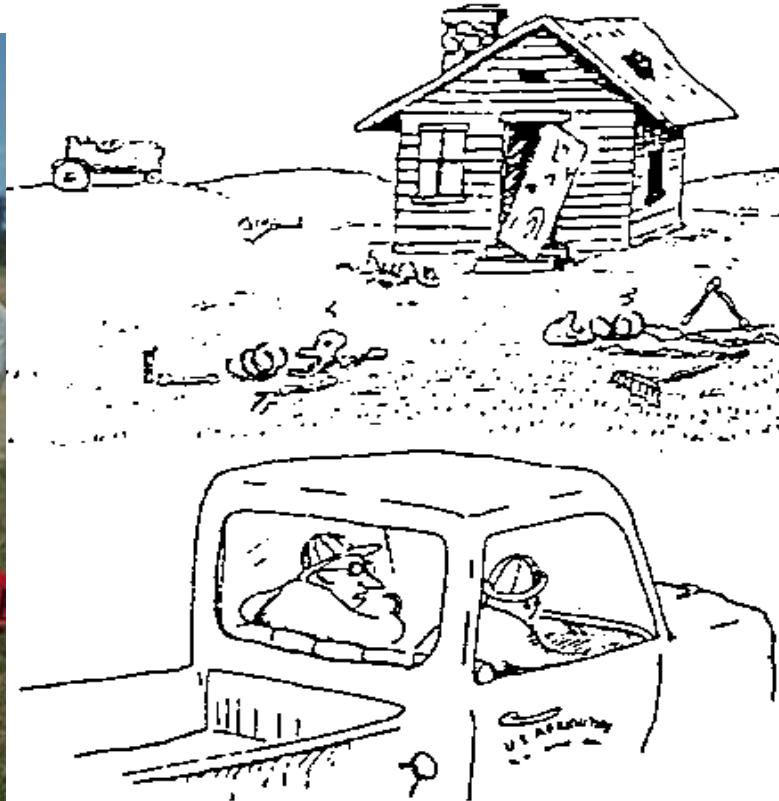
Respiratory Hazards



- Particulates
 - dusts
 - fumes
 - mists
 - Fibers
 - smoke
- Gases and Vapors
- Oxygen Deficiency



When Do You Need a Respirator?



"Supplied air? Come on Bill, be a man."

Approved Respirators

- NIOSH (National Institute for Occupational Safety and Health)
 - Tests and certifies respirators for occupational uses
 - Job-required respirators **MUST** be NIOSH approved for their application
- Any change in respirator's condition or improper use voids its approval



Air Purifying Respirator Limitations

- Air Purifying Respirators should not be used:
 - Oxygen deficiency (<19.5%)
 - Unknown Contaminant/Concentration
 - IDLH Condition
 - Poor Warning Properties
 - smell
 - taste
 - irritation
 - Incorrect filters/cartridges
 - No cartridge change schedule or ESLI established
 - Inadequate Protection Factor

Becoming Qualified to Use a Respirator: Overview

- Medically qualified
- Properly trained (annually)
- Fit tested



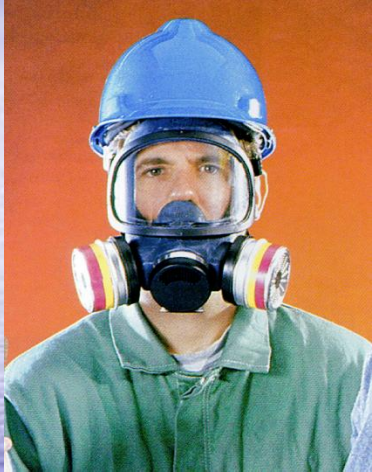
Respirator Fit Tests



Respirator Qualification: Fit Testing

- Required prior to initial use and at least annually for ALL tight-fitting styles (mandatory use)
- 2 Types fit tests:
 - Qualitative (pass/fail only)
 - “quit lying”
 - Quantitative
 - “number”

Respiratory Protection



- **Two basic types of respirators:**

⌘ Air-purifying respirator (APR)

⌘ Atmosphere-supplying respirator: SAR and SCBA



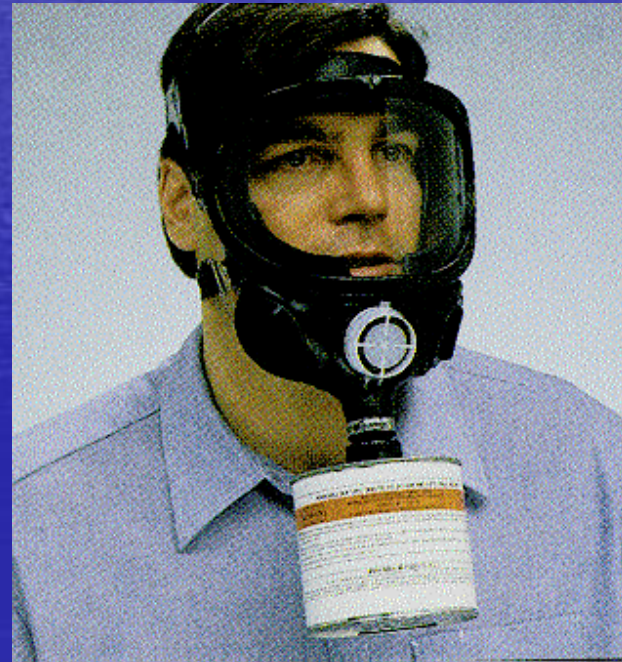
Air-purifying Respirators (APR) North



- Full-face piece
- Mouthpiece

Air-purifying Respirators (APR)

Cartridge vs. Canister



Atmosphere-supplying Respirator



Air-line respirator

⌘ Air is supplied to the face piece through a hose from a compressor or compressed air cylinder

Atmosphere-supplying Respirator

Self-contained breathing apparatus (SCBA)

Open-circuit- exhaled air is released to the surrounding environment after use

Closed-circuit - exhaled air is scrubbed and re-breathed

Atmosphere-supplying Respirator



- ⌘ Pressure-demand (positive-pressure) type regulator
- ⌘ Positive pressure is maintained inside the face piece during both inhalation and exhalation

Decontamination





Questions?



Are there any questions?

Considerations, Costs, and Funding Sources for Developing Tribal Oil Spill Response Capabilities – The Lummi Nation Experience



Lummi Natural Resources Department
Jeremy Freimund P.H., Water Resources Manager

Hazardous Waste Operations and Emergency Response
24-Hour Training Course: Day 1, Session 10.
Lummi Nation Silver Reef Hotel, Casino & Spa
September 24, 2014



Purpose Statement

- The purpose of this presentation is to provide information about developing tribal oil spill response capabilities based on the Lummi Nation experience including:
 - Considerations;
 - Staff training;
 - Lummi's oil spill response equipment;
 - Lummi's oil spill response equipment costs and funding sources;
 - Programmatic Actions.



Considerations

Why Did the Lummi Nation
Develop an Oil Spill
Response Program?



Lummi is a Fishing Tribe

Largest Northwestern
Tribal Fishing Fleet



Treaty Rights to a Commercial,
Ceremonial, and Subsistence
Harvest





Lummi is a Fishing Tribe

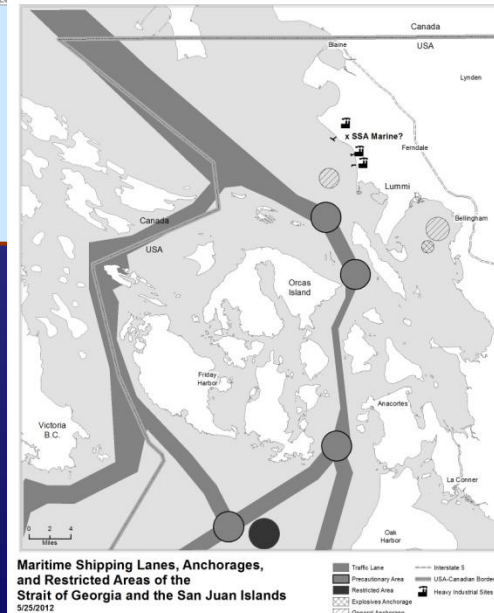
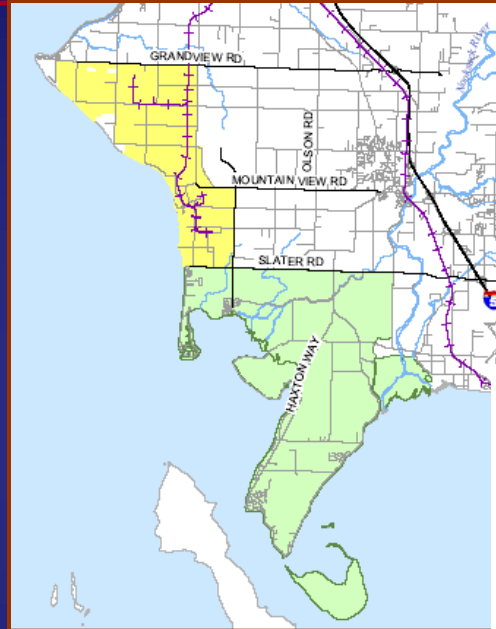


Harvests require access to fishing grounds and stations that are not contaminated with toxic substances



Reservation Location

- Proximity to Cherry Point Heavy Impact Industrial Zone
- Proximity to Georgia Strait, Puget Sound, Bellingham Bay, Shipping Lanes, and Anchorages
- Proximity to Anacortes/March Point Refineries





Off-Reservation Spill Sources

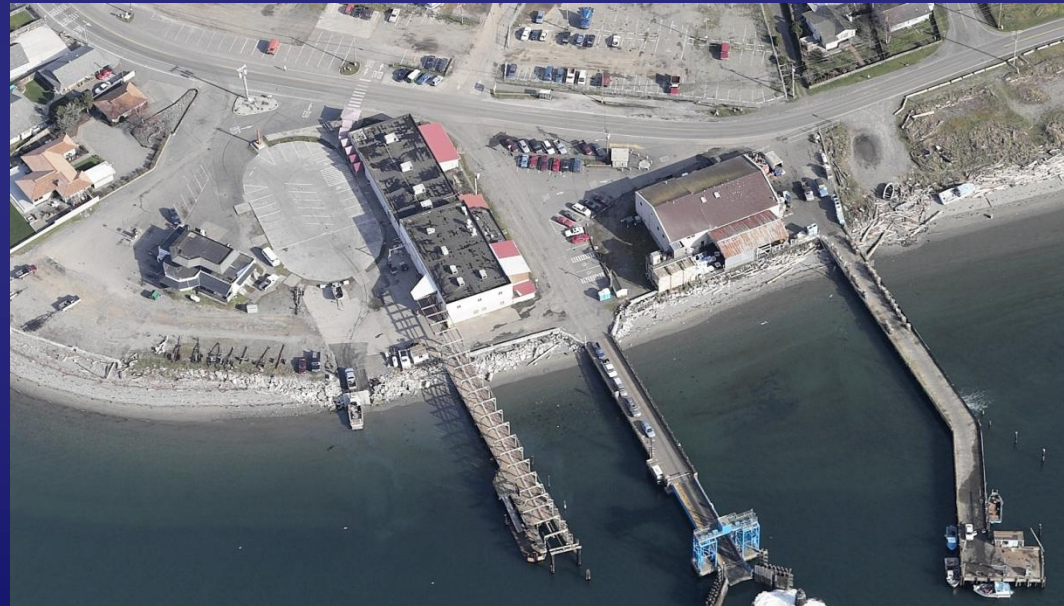


- Two Petroleum Oil Refineries
 - Crude oil and products by tanker, barge, pipeline, and train; products such as gasoline, jet fuel, diesel, heating oil, propane, butane; process materials such as sulfuric acid, sodium hypochlorite, hydrofluoric acid
- Aluminum plant
 - Alumina, chlorine, sulfuric acid, diesel, gasoline, sodium hydroxide
- Cogeneration facility
 - Natural gas, anhydrous ammonia, sulfuric acid, diesel



On-Reservation Spill Sources

- Boat launch and boat storage
 - Gasoline and diesel, vessel sinkings
- Gas stations
 - Gasoline, diesel, propane
- Marina
 - Oil and fuel spills
- Sewage spills
- Roads
- Construction sites





Other Considerations

- Oil spill response does not happen in a vacuum – need to integrate with other response agencies, organizations, and industry
- Training and equipment are needed to increase the likelihood of a safe and effective response to an oil spill:
 - Participate in oil spill table top exercises – contact local refineries for invitation or see Northwest Area Contingency Plan for drill calendar (<http://www.rrt10nwac.com/nwacp/>).
 - Ensure spill response equipment is compatible with equipment used by other response organizations and practice deployments.



Staff Training Efforts



Training Goals

- Establish a Lummi Spill Response Team
 - LNR, Law Enforcement, and LNTHPO staff plus fishers
 - HAZMAT training
 - Focus on response training
 - Policy and technical staff support
 - 24/7 availability
 - Able to work in shifts for long time scale response efforts (i.e., 24 hours, 3+ days)





Training Focus

- Provide training to ensure a safe and effective response:
 - OSHA training – awareness, operations technician, specialist, general site
 - Incident Command System (ICS) focus
 - Unified Command
 - Planning Section
 - Operations Section
 - “Table Top” spill drills (Establish relations, ICS proficiency)
 - Boom deployment drills to practice and test the GRPs
 - Emergency Management training – FEMA, WA EMD
 - Recovery documentation and preparation - FEMA





Lummi Oil Spill Response Equipment

Lummi Oil Spill Response Equipment



- Equipment Includes:
 - Spill Response Boats
 - LNR has a 26 foot “Responder” and 16 foot skiff
 - Lummi Police have three boats
 - Boom Trailer that holds 1,200 ft of 8” x 12” boom
 - Boom (1,500 feet) and Tow Bridles (6 units)
 - Boom Anchor Systems (four 22 lb; four 40 lb anchors and buoys)



Lummi Oil Spill Response Equipment



- Equipment (Continued):
 - Spill kits
 - Oil snares and oil sweeps
 - Sorbent pads and boom
 - Personal Protective Equipment
 - Communication – radios, cell phones
 - 5 hp Pump
 - Flashlights
- Equipment is included in the Western Response Resource List (WRRL)



Lummi Oil Spill Response Equipment Costs and Funding Sources

Lummi Oil Spill Response Equipment Costs



Estimated Lummi Oil Spill Response Equipment Costs and Funding Sources

Items	Costs	Funding Source
16 ft HarborCraft Boat, 30 HP outboard (2000)	\$10,000	EPA Section 104
8' x 20' Storage Container (2004)	\$3,000	EPA - GAP
1,500 feet of boom (2004)	\$10,725	EPA - GAP
Tow Bridles/Anchors (2004)	\$3,100	EPA - GAP
Nine (9) Spill Kits (2004)	\$1,100	EPA - GAP
Sorbent Sweeps/Snares/Pads/Booms (2004)	\$1,300	EPA - GAP
Tools/gloves/rain gear/disposal bags/fence posts/PFDs (2004)	\$2,500	EPA - GAP
Delivery Charges (2004)	\$2,100	EPA - GAP
Boom Trailer (2005)	\$5,000	EPA - GAP
5 HP Pump (2005)	\$500	EPA - GAP
26 ft Responder Boat/Motor/Trailer (2006)	\$35,000	EPA - GAP
Sorbent Sweeps/Snares/Pads/Booms; PPE Gear Bags (2006)	\$4,200	Ecology Oil Spill Response Equip Grant
TOTAL DIRECT CHARGES:	\$78,525	
INDIRECT CHARGES	\$21,475	
TOTAL COSTS	\$100,000	

- Most expensive pieces of equipment are the boats – costs, including annual maintenance, offset by water quality sampling program.
- Prices shown are now 10 years old.
- Effort “kick-started” with a FY03 Special Projects GAP Grant for \$35,992



Oil Spill Response Related Programmatic Actions



Programmatic Actions

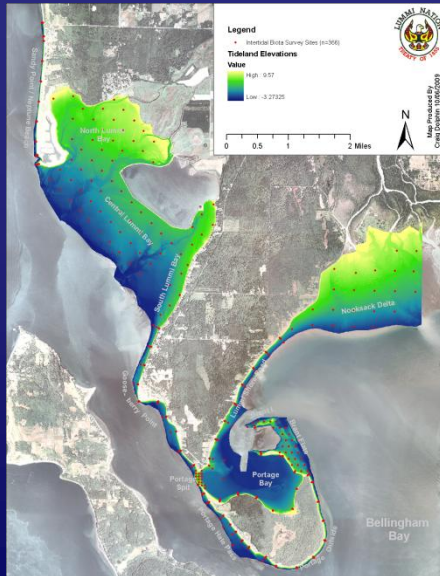


- Tribal Land Use Permitting
 - Storm Water Management – Pollution Prevention Plans
 - Spill response conditions incorporated in permits
- Water Quality Monitoring
 - Ambient monitoring program
 - Spill response sampling
- Clam Surveys
 - Tideland resources



Programmatic Actions

- Lummi Inter-tidal Baseline Inventory (2010)
 - Pre-disaster ecological assessment of Reservation tidelands
- Six Surveys
 - Topographic
 - Inter-tidal biota
 - Large bivalve
 - Finfish
 - Shorebird and marine mammal
 - Petroleum toxicity baseline
- Over 242 separate taxa documented



Programmatic Actions



- Participation in the scoping and review of vessel traffic safety studies being conducted for the proposed GPT and Kinder-Morgan projects in particular but also the three other studies being conducted.
- Contracted technical expert




Current Program Development Focus

Current Program Development Focus




- Increase participation of LNR, Police, and LNTTHPO staff in Industry-sponsored and LNR sponsored spill drills
- Increase participation of staff from other tribal governments in Industry-sponsored spill drills
- Update the 2005 Lummi Nation Spill Prevention and Response Plan



Tribal 24-hr HazMat & Oil Spill Awareness Course

Sponsored by the Lummi Nation, US EPA Region 10, and the NW Regional Response Team

September 24-26, 2014
Silver Reef Hotel, Casino & Spa
Lummi Indian Reservation




Tribal officials and representatives that have responsibilities in Cultural Resources, Forestry, Fisheries, Water Resources, Law Enforcement, Fire Department, Emergency Planning, TSMO, Wildlife Protection, or Environmental Protection are invited to attend this FREE 24-hour HazMat and Oil Spill Awareness Course taught by the US EPA. Participants will learn the basic skills needed to assist in responding to a hazardous materials and/or oil spill incident, including health/safety, basic chemistry, use and types of personal protective equipment, agency responsibilities and resources. Additional skills taught will include information related to integrating tribal responsibilities into the Incident Command System (ICS) pursuant to the Northwest Area Contingency Plan (<http://www.nwrtp.org>). At their discretion, Tribes may determine if they need the OSHA 24-Hr HazMat Technician or 24-Hr HazMat Refresher requirement.

A block of 20 discounted rooms has been reserved at the Silver Reef Hotel. Please call 360-362-3777 ext. 135 and mention "Lummi Natural Resources Hazmat & Oil Spill Response Training" when making reservations. Space is limited to 45 participants in the training - please register today!

To register, please contact:
Josie Clark, US EPA
(206)633-6219 or
clark.josie@epa.gov

Training Information:
Location: Silver Reef Hotel, Casino & Spa
4876 Huxton Way, Ferndale, WA 98248
Times: 8:00 am-4:30 pm (each day)



Summary and Conclusion





Summary and Conclusions

- A major oil spill could potentially destroy the environment and associated natural resources that the Lummi People have relied on since time immemorial for commercial, ceremonial, and subsistence purposes.
- The Lummi Nation has been developing its oil spill prevention and response capabilities since the mid-1990s in order to minimize the risk of a spill and to help ensure a safe and effective response in the event of a spill.



Summary and Conclusions

- This effort has included:
 - Programmatic actions to prevent spills from occurring in the first place;
 - Providing training, acquiring equipment, and participating in both table top and boom deployment oil spill drills to increase the chances of achieving or supporting a safe and effective response to small and large oil spills;
 - Encouraging other tribal governments to develop spill response capabilities including by participating in industry-sponsored spill drills.



Questions?



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State of Oregon
Department of
Environmental
Quality

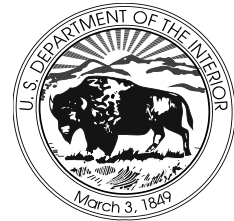
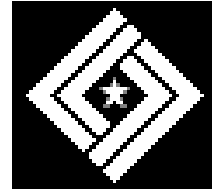


Northwest Area Contingency Plan

2014

***Also serving as the Region Ten
Regional Contingency Plan***

NW Area Committee



What is an Area Committee?

- ▶ Interagency group charged with pre-planning for oil spills
- ▶ Comprised of any player who has a role in oil spill response
- ▶ Spatial boundaries defined by EPA/USCG
- ▶ Mandated by OPA 90 Section 4202(4)(A)

Who is on an Area Committee?

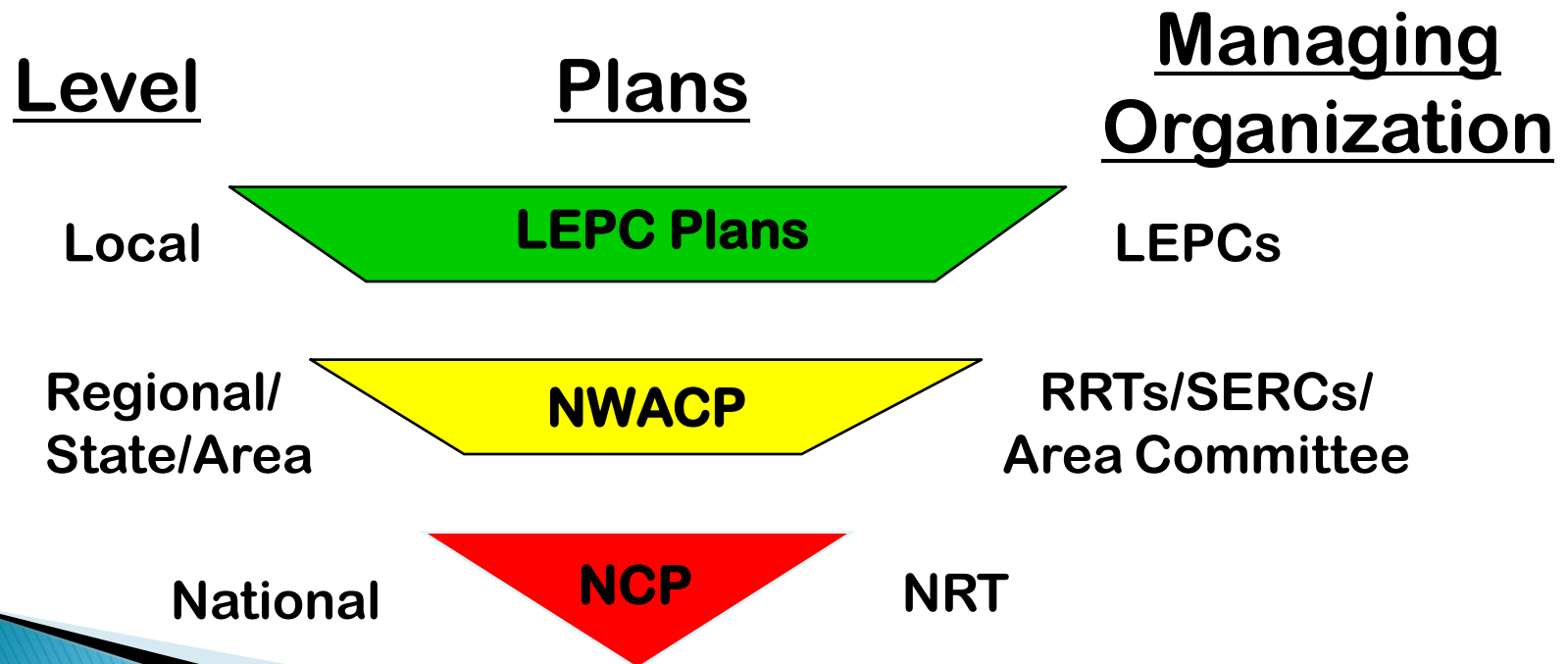
- ▶ Fire Department
- ▶ Tribes
- ▶ Local Health Dist.
- ▶ Industry
- ▶ NGOs
- ▶ Private Citizens
- ▶ State Police
- ▶ State Health Department
- ▶ State Env. Reg.
- ▶ USCG
- ▶ EPA
- ▶ NOAA
- ▶ DOI
- ▶ DoD, DOE, etc.

Area Committee members include anyone who has a role in oil spill response.

What is an Area Contingency Plan?

- ▶ A local/regional blueprint for oil (and hazmat) response
 - Contact information
 - Policy decisions
 - Sensitive resource information
 - Local/Regional response resources
- ▶ Mandated by OPA 90 Section 4202(C)

Preparedness Components of the National Response System

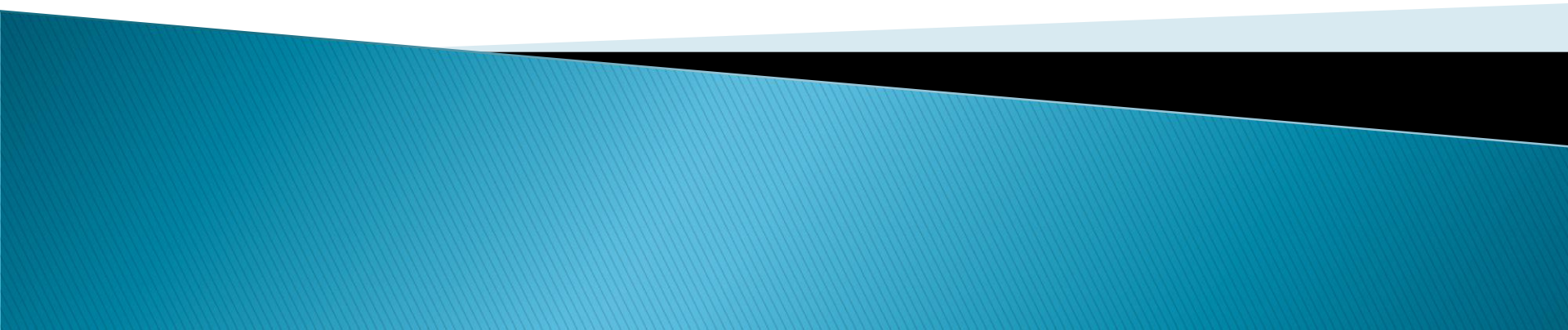


What does the plan do?

The plan is intended for use as a guideline for response actions to spill incidents and to ensure consistency in response to spills. Federal and state rules require that a Responsible Party (RP), or spiller, must be able to manage spills with a pre-designated response management organization that accommodates a unified command structure.

The plan serves as both the Area Contingency Plan and the Regional Contingency Plan for WA, OR, and ID, two USCG Captain of the Port Zones and EPA's Inland Zone.

Federal, state, tribal, and local government representatives as well as representatives from commercial, non-profit, and private concerns drive this planning effort from the ground up.



What is the purpose of the plan?

To provide for orderly and effective implementation of response actions to significant oil and hazardous materials incidents

To promote coordination between agencies, spillers, communities, Tribes and contractors

To be consistent with the National Contingency Plan (NCP)

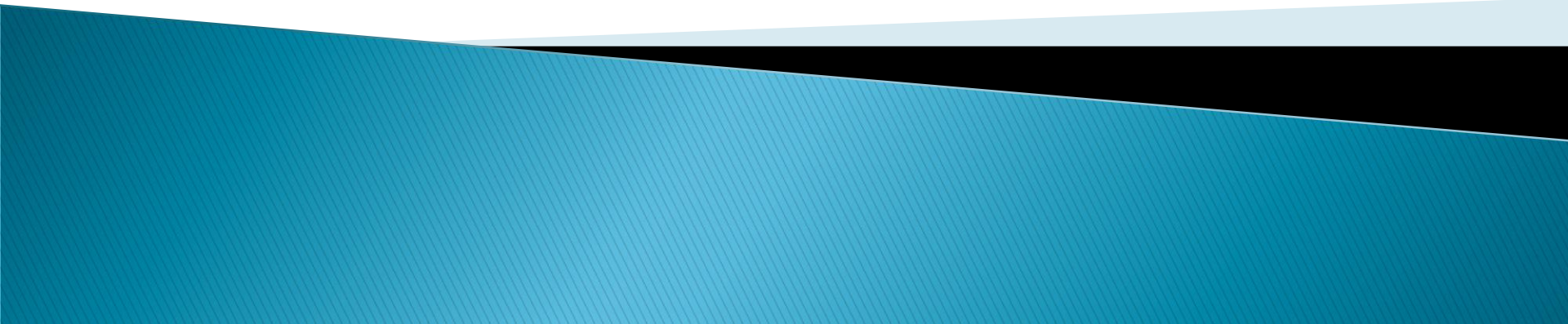
To provide guidance to all Facility and Vessel Response Plan reviewers and Plan holders to ensure consistency with the Area Contingency Plan.

To be a guidance manual for responders.



What is in the plan?

Some policies you might witness . . .



Jurisdictional Boundaries

Default:
High water
mark

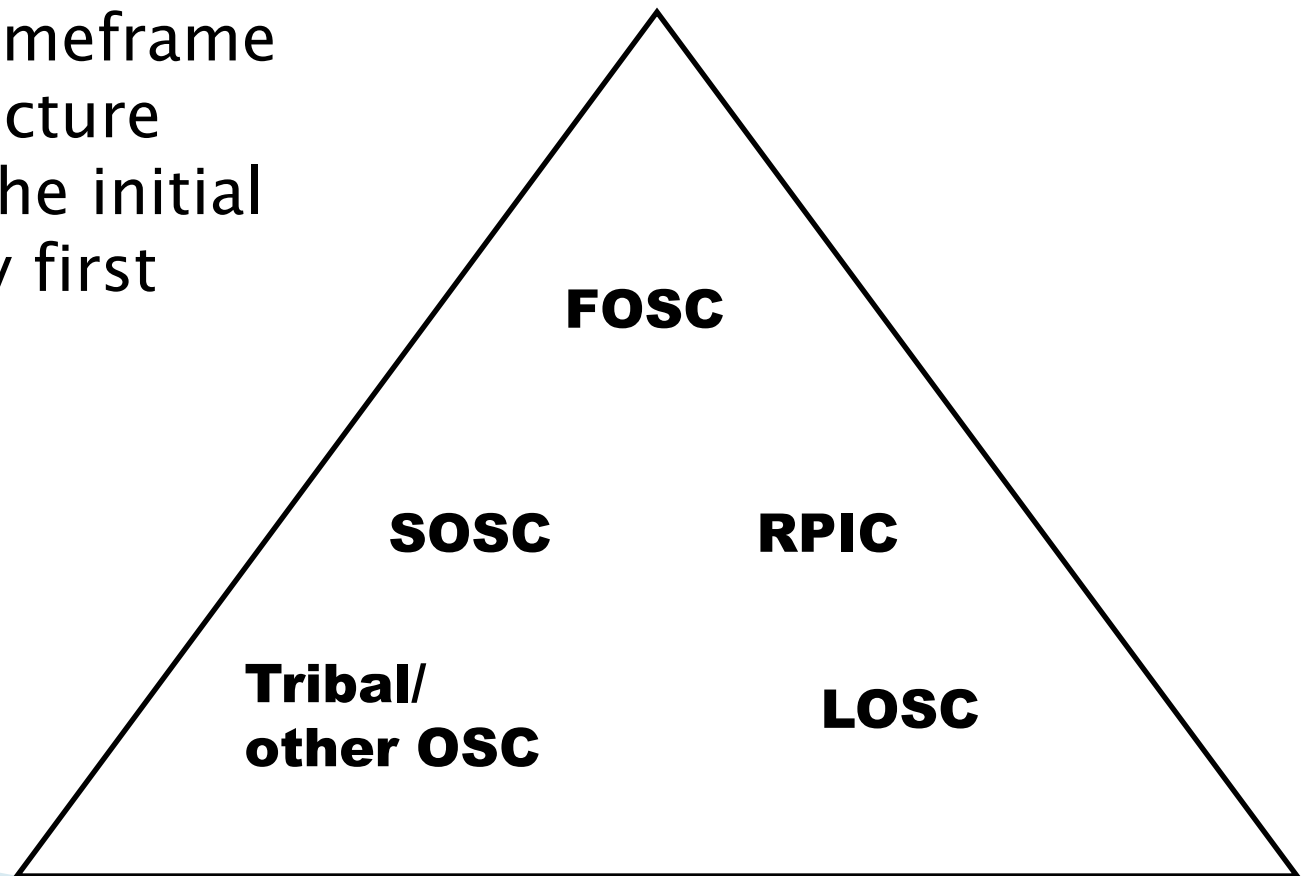
Exceptions:
Mainly
commercial
waterways



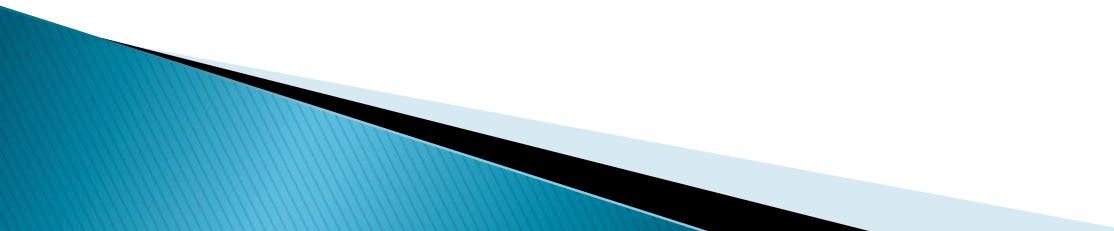
Unified Command Diagram

Directly from NWACP, Page 2000-2

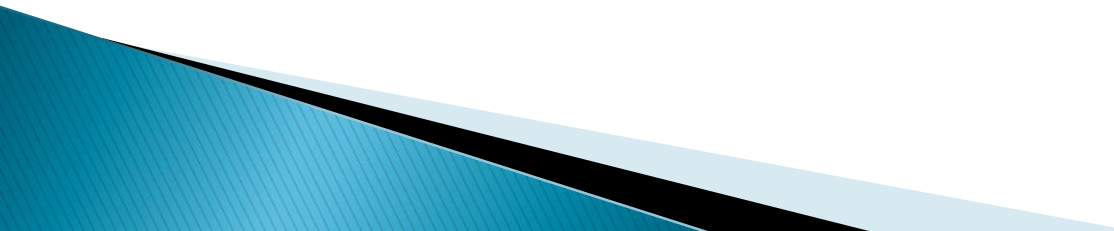
Note: The timeframe for this structure will follow the initial response by first responders.



Command Policies

- ▶ Responsible Party manages spill if:
 - Cooperative with FOSC and SOSC
 - Complying with NWACP Policies
 - Conducting Full and Rapid Response
 - ▶ Information Officer
 - NWAC prefers it not be filled by the spiller
 - ▶ Liaison Officer
 - NWAC prefers it be filled by a government agency
- 

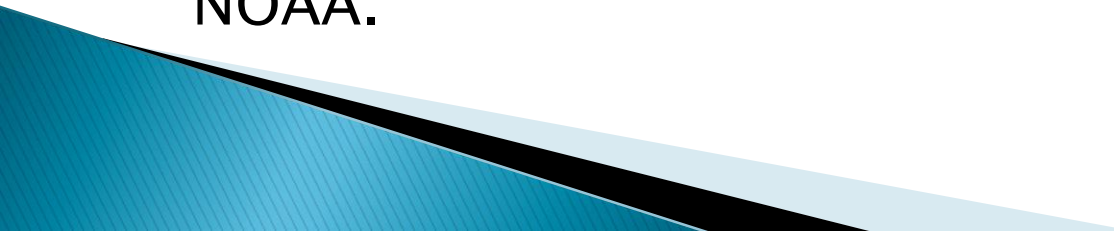
Operations Policies

- ▶ A Wildlife Branch will be stood up for oil spills which threaten animals.
 - ▶ Robust NWACP Wildlife Plan
 - ▶ See Planning Section (Chapter 4000) for more policies
- 

Dispersant Use

- ▶ **Pre-approval Zones:** Marine water 3 to 200 nautical miles from coastline or island shoreline except waters designated as NMS, Makah U&A and Canada. Within this zone the FOSC may authorize dispersant use without further concurrence with the RRT.
- ▶ **Case-by-case Approval Zones:** All marine waters within 3 nautical miles and greater than 60 feet, waters part of NMS and Makah U&A that are also deeper than 60 feet, waters north of Puget Sound, and waters within 3 miles of borders of the Makah U&A and Canada. In all areas outside this zone FOSC authorization for dispersant use requires concurrence with EPA and the State.
- ▶ **No Dispersant Use Zones:** Freshwater, waters of Puget Sound, and waters that are less than three miles from coastline and equal to or less than 60 feet deep. In these areas, dispersants may be used only if in the judgment of the FOSC they are required to prevent or substantially reduce a hazard to human life.

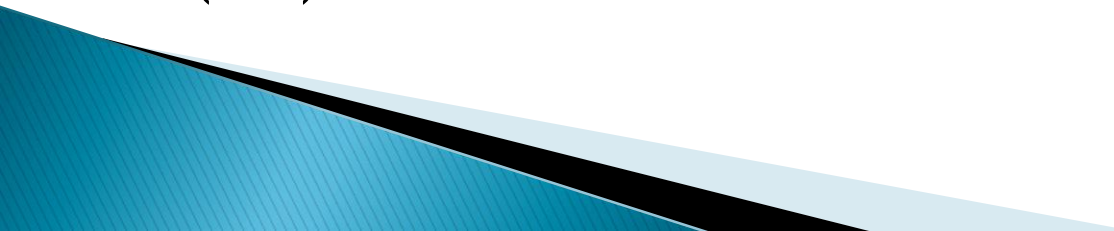
In Situ Burning

- ▶ NWACP contains guidelines to evaluate appropriateness of ISB
 - ▶ **Pre-approval Zones:** More than 3 miles from a population center (marine water 3 to 200 nautical miles from coastline).
 - ▶ **Case-by-case Approval Zones:** Inland and shoreline areas
 - ▶ Application of burning agents requires concurrence from EPA, maybe State, and consultation with DIO and NOAA.
- 

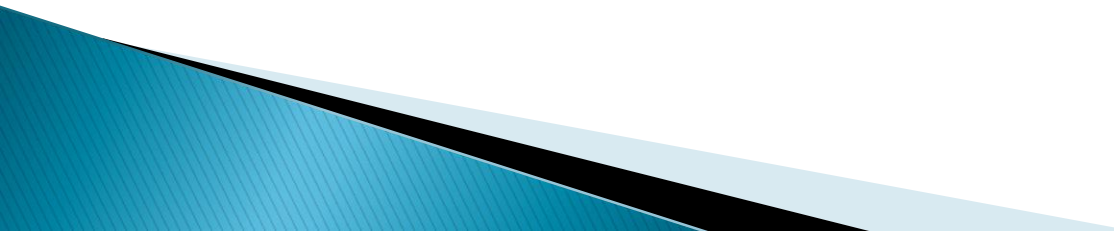
Decanting

- ▶ Decanting of the listed oils is pre-approved if the following conditions are met:
- Pre-Approval is for the first 24 hours after spill discovery. Decanting requests for all the remaining operational periods will need to be completed and submitted to the UC.
- The Incident Commander must be notified within one hour of decanting 21 being initiated and must then immediately notify the Unified Command.
- The RP assures the UC that they are quickly obtaining adequate oil storage and skimming capacity within the first 24 hours and the responding PRCs are expeditiously getting sufficient storage and skimming capacity on site to alleviate the need for prolonged decanting.

Waste Disposal

- ▶ Oil Spill Recovery and Cleanup Operations Generate Large Quantities of Recovered Oil and Oily Waste.
 - ▶ The Area Plan includes a “Guideline” to describe how waste must be handled, designated, segregated, tracked, stored, transported, treated, and finally disposed.
 - ▶ A “Sample Disposal Plan” is included to serve as a model format for incident specific disposal plans.
 - ▶ A Disposal Plan should be developed by the Environmental Unit in coordination with the Operations Section for incorporation into the Incident Action Plan (IAP).
- 

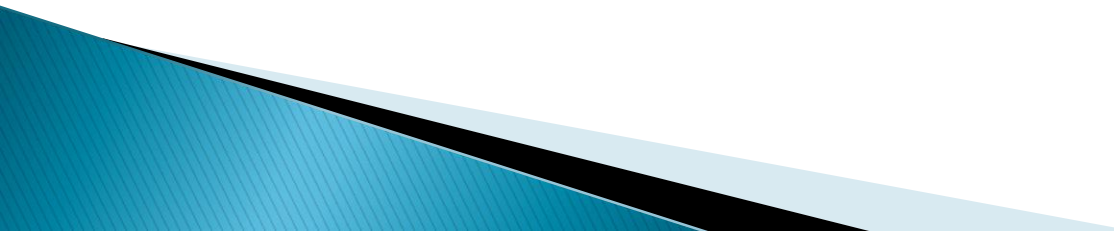
What else is in the plan?

- Required notifications
 - The volunteer policy
 - Compliance Guidance for State and Federal laws
 - Accessing State and Federal funds
 - Information on interagency response partners and what may trigger their involvement in an oil/hazmat incident
 - Geographic Response Plans and Strategies
 - A list of available spill response equipment (WRRL)
 - Joint Information Center Manual
 - Etc, etc, etc
- 

Geographic Response Plans

- » Tactical, site specific oil response strategies

Purpose of the GRP's

- ▶ Prioritize natural, cultural and significant economic resources
 - ▶ Allow for immediate and proper action
 - ▶ First responders know what actions to take
 - ▶ Includes:
 - Area maps
 - Prioritized booming strategies
 - Access points
 - Staging areas
- 

DECEPTION PASS

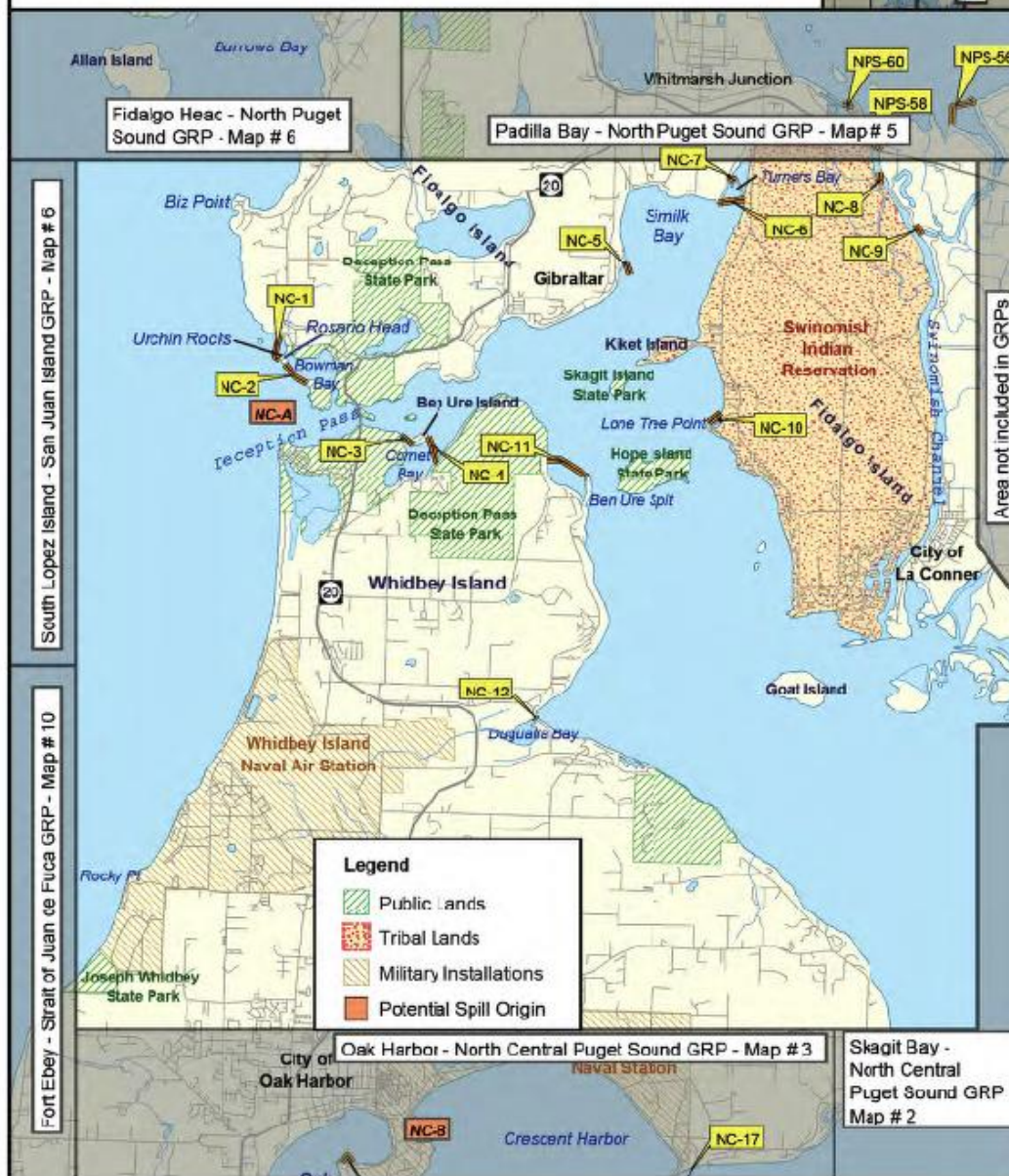
Proposed Booming Strategies

North Central Puget Sound GRP

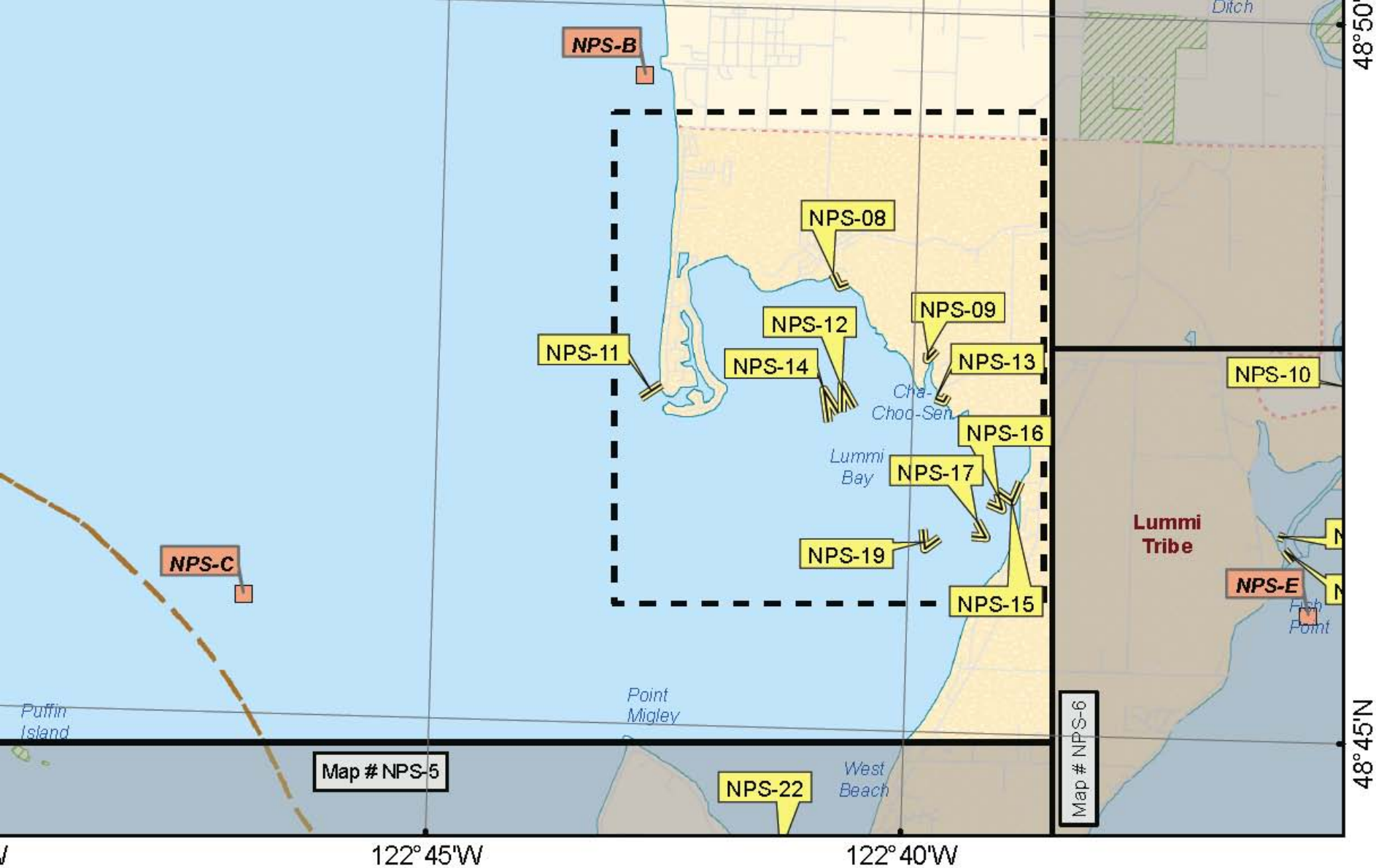
MAP # 1

March, 2003

0 0.5 1 2 Miles







Key Elements for Each Strategy

▶ Where

- Identifier, Location, Lat/Long, Access

▶ How

- Required Equipment, Staging Area, Strategy Implementation

▶ Why

- Resources at Risk
- Strategy Type and Objective
 - Exclusion, Collection, Deflection, Notification

Strategy	Location	Position	Strategy Type & Objective	Boom Length	Staging Area	Site Access	Strategy Implementation	Status	Resources at Risk
----------	----------	----------	---------------------------	-------------	--------------	-------------	-------------------------	--------	-------------------

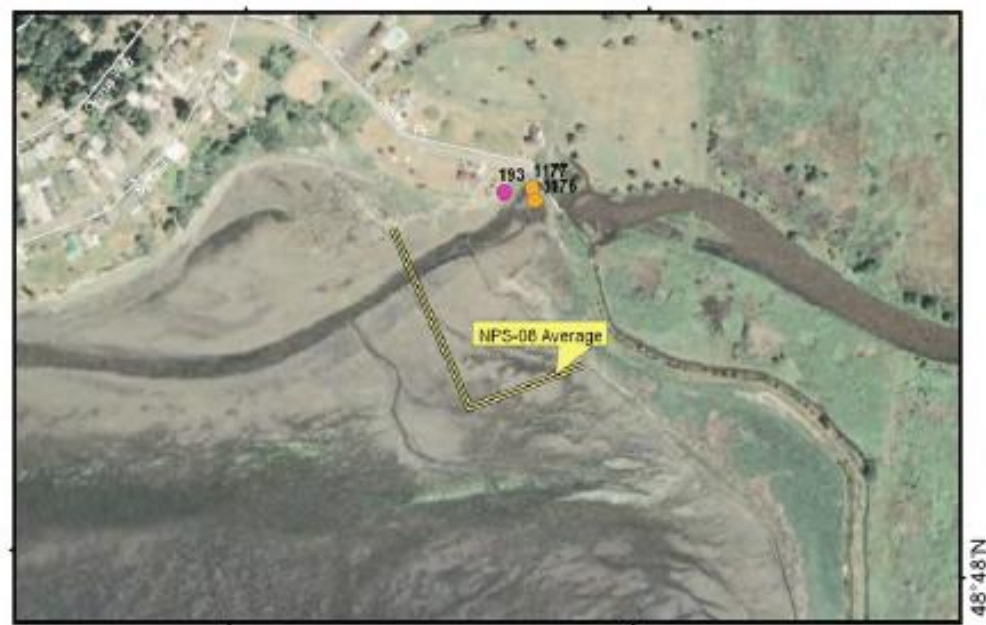
NC-1	Urchin Rocks (NW of Bowman Bay and Deception Pass)	N48.41716667 W122.66558333	Exclusion Keep oil off Urchin Rocks and out of the tide pools on the north shore of Rosario Head.	1900'	Stage from the Bowman Bay boat ramp parking lot, the Deception Pass State Park, or Anacortes.	By boat from the ramp in Bowman Bay, or from Anacortes. Vehicle access from Highway 20 to Rosario Road.	Deploy boom from Rosario Beach, out to and around Urchin Rocks, and back to the west side of Rosario Head to protect the tide pools on the north shore of Rosario Head. This area is exposed to southerly and westerly weather, fall back and protect as much of Urchin Rocks and the tide pools as possible if the strategy cannot be deployed as described. Rosario Beach is a low priority for this strategy.	Created 9/01	Protect the tide pools on Rosario Head, rocky shoreline, and kelp beds; seabird concentrations, and sensitive nesting species.
NC-2	Bowman Bay and Sharpe Cove (NW of Deception Pass)	N48.41366667 W122.6594167	Exclusion Keep oil out of the bay and cove.	1900'	Stage from the Bowman Bay boat ramp parking lot, the Deception Pass State Park, or Anacortes.	By boat from the ramp in Bowman Bay, or from Anacortes. Vehicle access from Highway 20 to Rosario Road.	Deploy boom in a chevron configuration across the entrance to the bay and the cove from the south side of Rosario Head to the northwest corner of Reservation Head. Run the boom between Gull Rocks and Coffin Rocks. This area is exposed to southerly and westerly weather, fall back and protect as much of the bay and cove as possible if the strategy cannot be deployed as described.	Field Test 5/00	Protect rocky shoreline and kelp beds, seabird concentrations, and sensitive nesting species.

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-08	Visited and Not Tested 07/30/2008	Sandy Point Tide Gates N 48° 48.113' W 122° 40.832' map page 4-19 Chart# 18421	Exclusion - Keep oil out of slough	400ft B2 - Contractor Boom	There are two options: block-off tide gates, if that is not possible deploy boom in a chevron in front of the tide gates. To deploy the chevron will require a skiff and 3 people. Piling in the area could be used to help hold the boom in place. Contact immediately or before entering Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0200	tribal lands/resources, sensitive habitat

Site Lat/Long:	N 48° 48.113' / W 122° 40.832', Sector Map NPS-4
Strategy Objective:	Exclusion - Keep oil out of slough
Implementation:	There are two options: block-off tide gates, if that is not possible deploy boom in a chevron in front of the tide gates. To deploy the chevron will require a skiff and 3 people. Piling in the area could be used to help hold the boom in place.
Site Safety Note:	Slips, trips, falls. Pilings.
Field Notes:	Paved road access.
Resources Targeted:	tribal lands/resources, sensitive habitat
Fixed Anchors:	193: N 48° 48.191' / W 122° 40.783', Water Depth 0ft, shore near tide gates, adjust as needed
Watercourse Description:	Slough

**Suggested Equipment**

Quantity	Description
400 ft	B2 - Contractor Boom
1 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/30/2008



N
N 48° 48' 11.64" W 122° 40' 15.6" WGS 84 07/30/2008 1:07:03 PM

Image-1177: Northern most tide gate.



SE
N 48° 48' 11.25" W 122° 40' 15.4" WGS 84 07/30/2008 1:08:32 PM

Image-1176: Southern most tide gates.

Site Contact Information

High Priority - contact immediate or before entering:
Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.

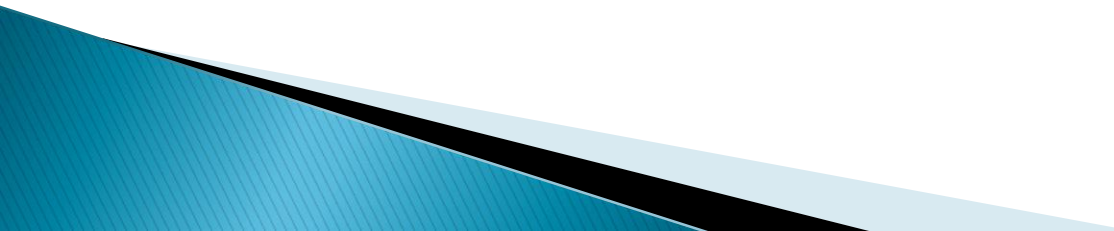
Closest Address:

98248

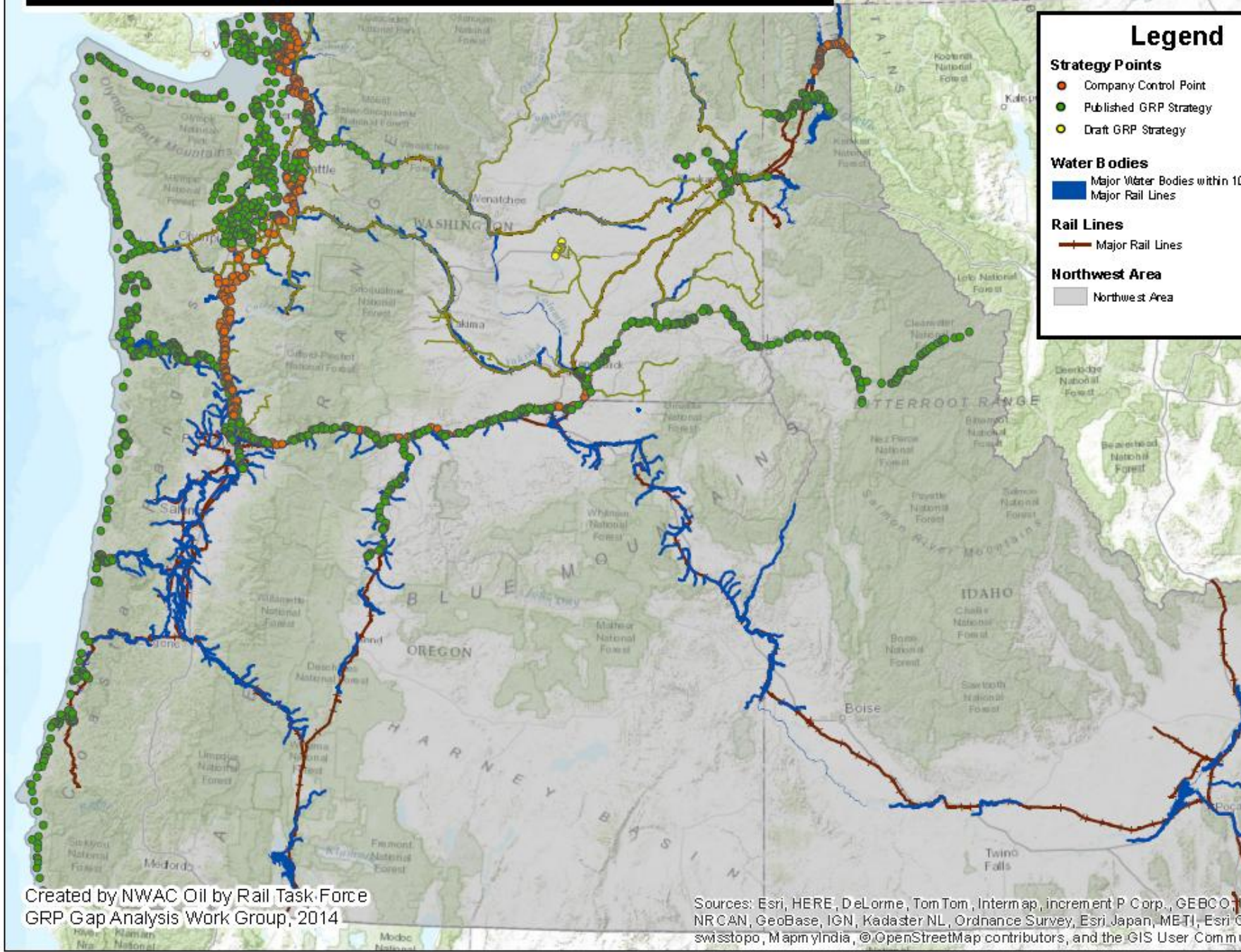
Driving Directions:

Cannot Drive to Site

Additional Information in GRPs

- ▶ Site Description
 - Habitats and risks
 - ▶ Shoreline Issues
 - Types of shorelines and cleanup recommendations
 - ▶ Resources at Risk
 - Fish and wildlife resources
 - Seasonal overflight restrictions
 - ▶ Logistics
- 

Northwest Area GRP Gap Analysis



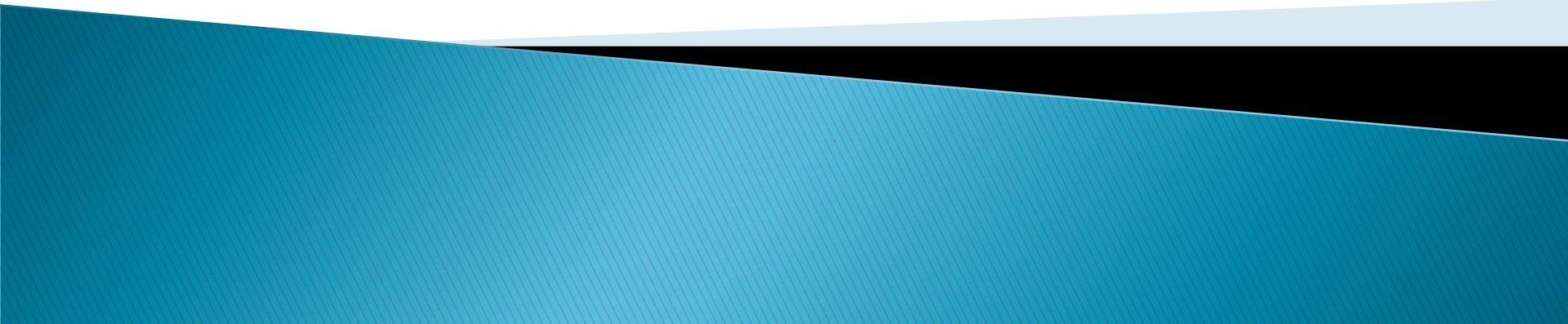
How Can I Use the NWACP?

- ▶ GRPs for resources at risk and initial booming strategies
- ▶ Use ICS-aligned chapters when working in Command Post
 - Stay in compliance with policies set by NWAC members
 - Take advantage of Job Aid style tools
- ▶ Gain understanding of roles/responsibilities of NWAC members

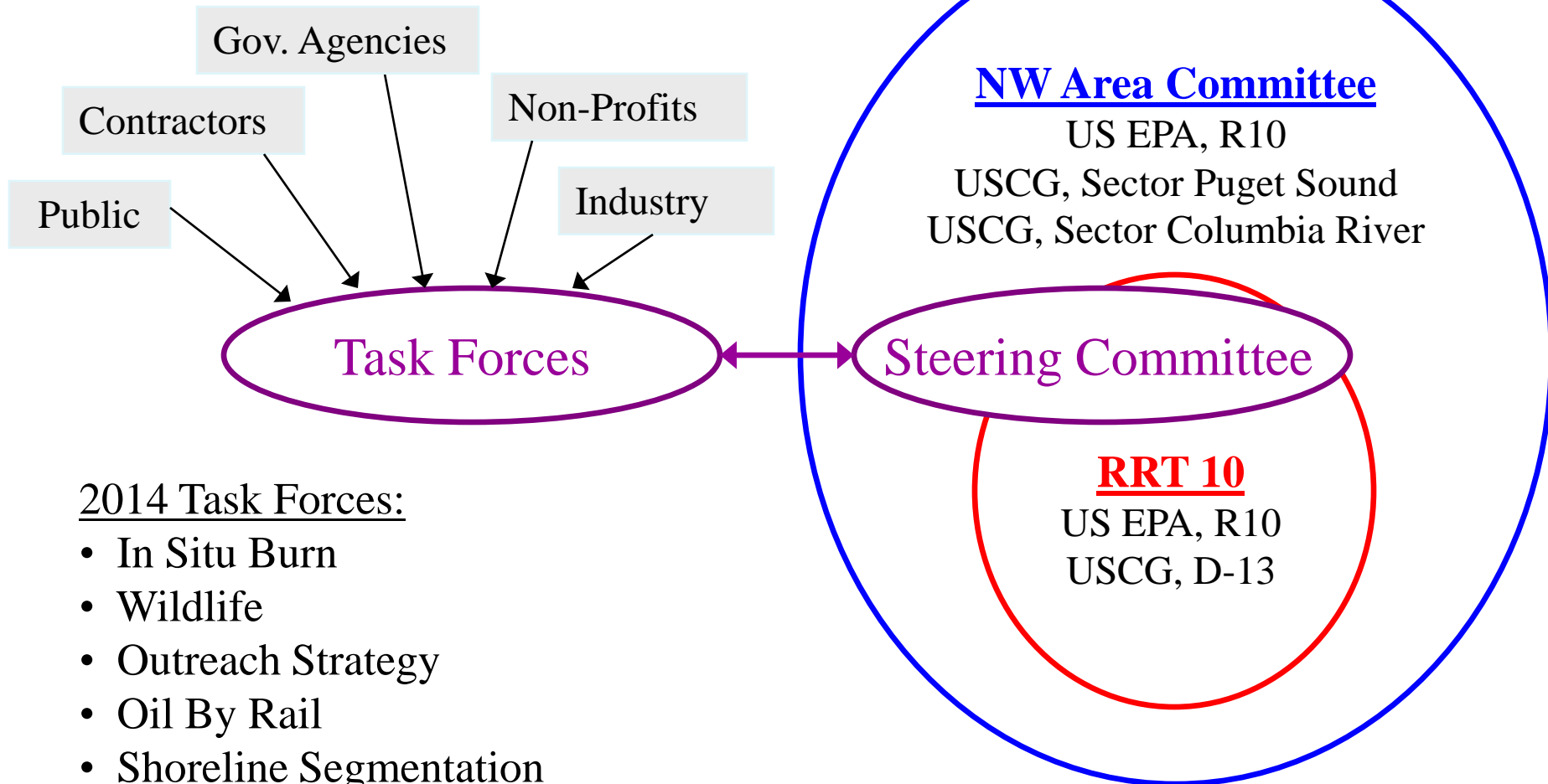
Tip: Word Search!



Ongoing Planning in Region 10



Direct input route:

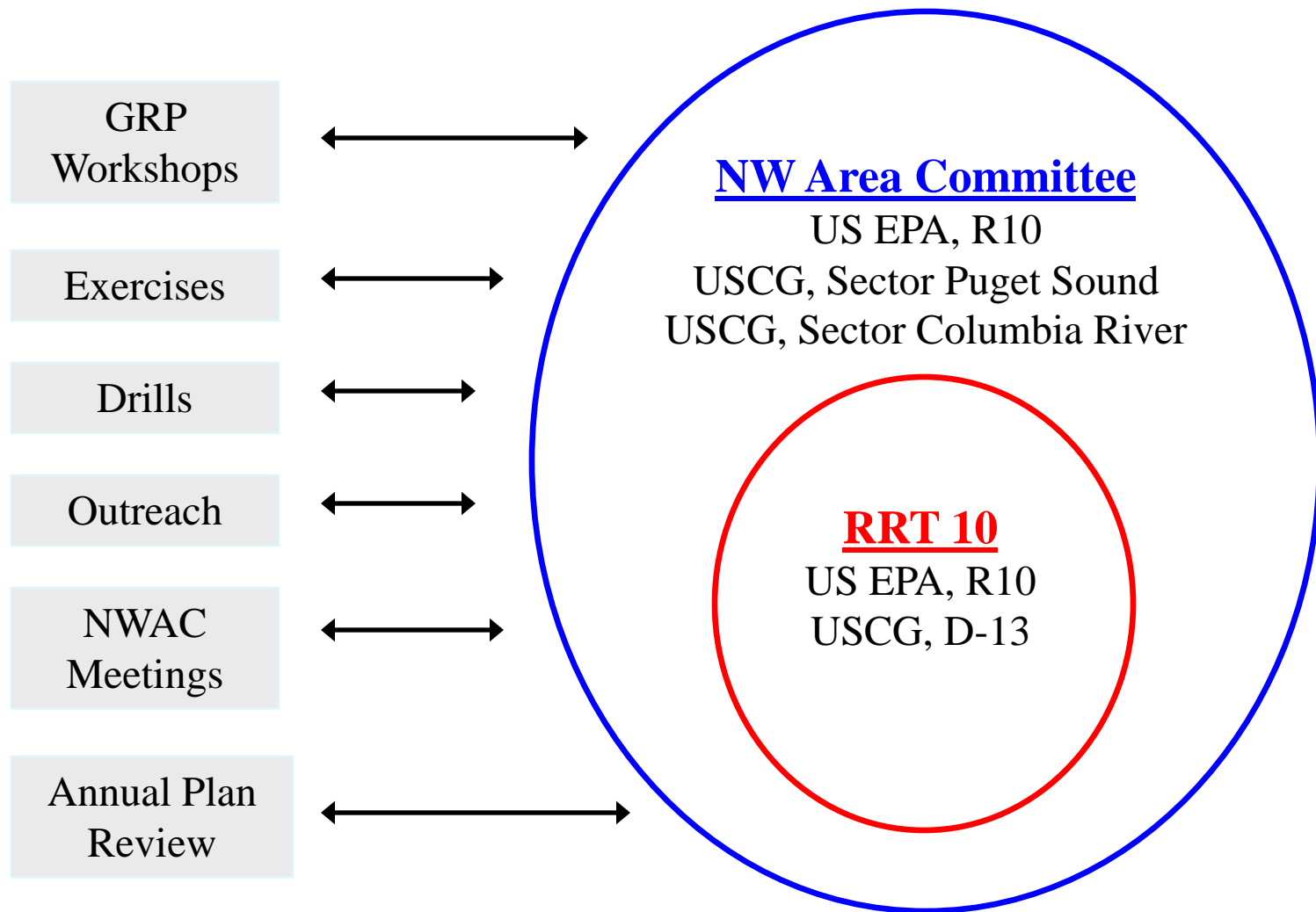


2014 Task Forces:

- In Situ Burn
- Wildlife
- Outreach Strategy
- Oil By Rail
- Shoreline Segmentation
- Group V (Nonfloating) Oil
- Endangered Species Act:
Emergency Consultation

NWAC Plan Evolves and Responders are Informed

“Integration with Reality”



How to get the plan, and connect with the NWAC

<http://www.rrt10nwac.com/>

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Heather Parker
USCG D-13
206-220-7215
Heather.a.parker@uscg.mil